20070102.25006501

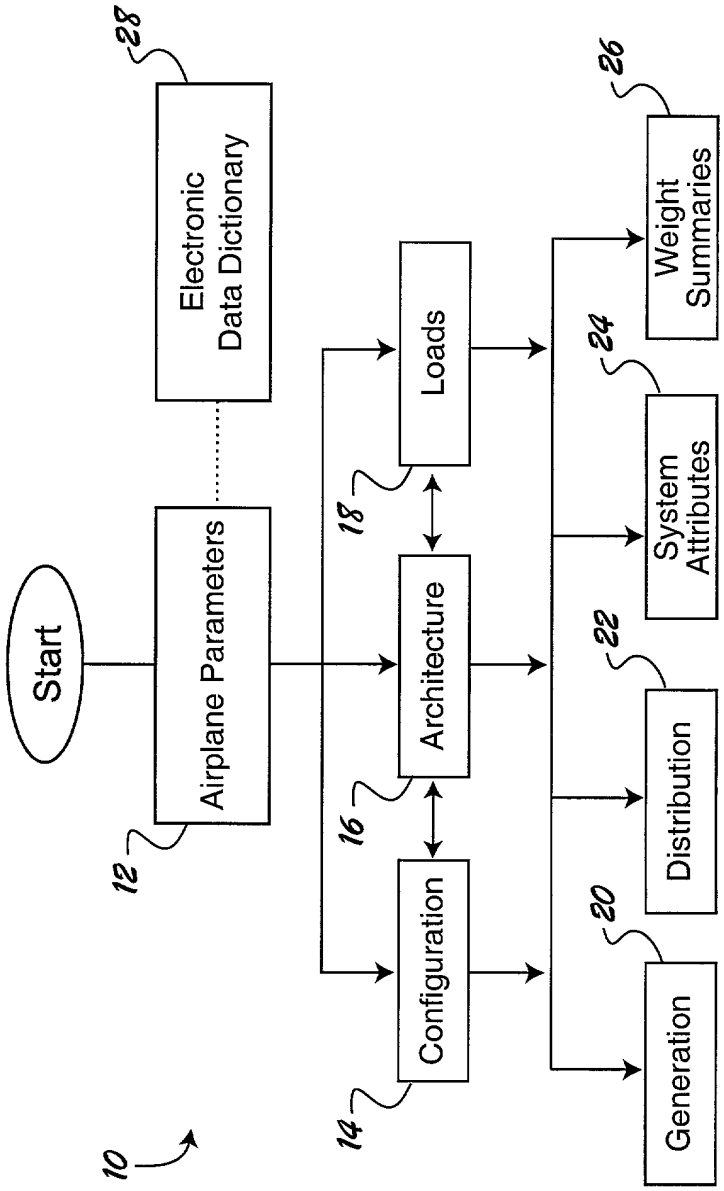

FIG. 1

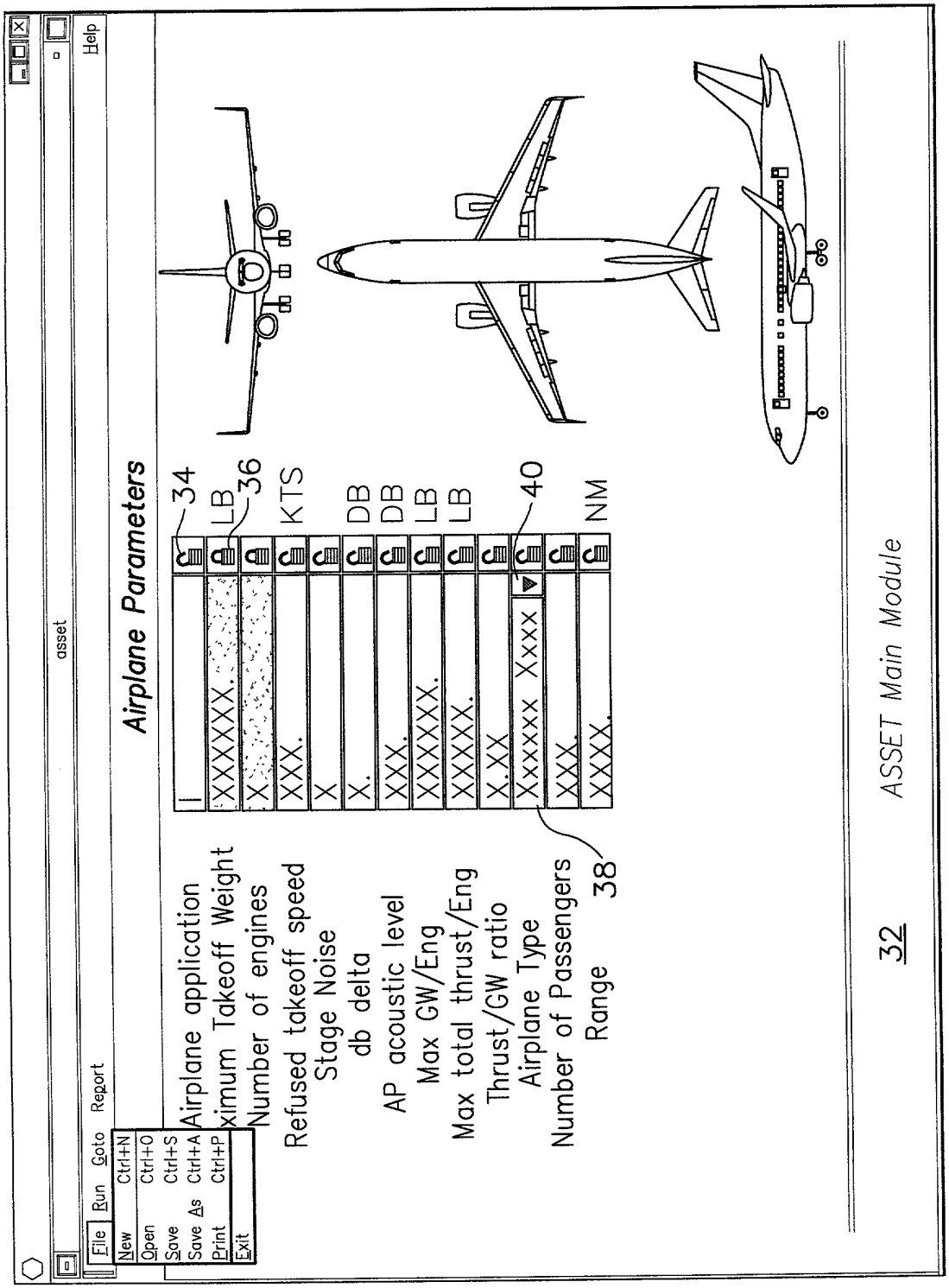
asset
File Run Goto Report Help
New Ctrl+N
Open Ctrl+O
Save Ctrl+S
Save As Ctrl+A
Print Ctrl+P
Exit
Airplane Parameters
Airplane application
Maximum Takeoff Weight
Number of engines
Refused takeoff speed
Stage Noise
db delta
AP acoustic level
Max GW/Eng
Max total thrust/Eng
Thrust/GW ratio
Airplane Type
Number of Passengers
Range
XXXXXX.
X
XXX.
X
X.
XXX.
XXXXXX.
XXXXX.
X.XX
Xxxxx Xxxx
XXX.
XXXX.
LB
LB
KTS
DB
DB
LB
LB
NM
34
36
40
38
32
ASSET Main Module

FIG. 2

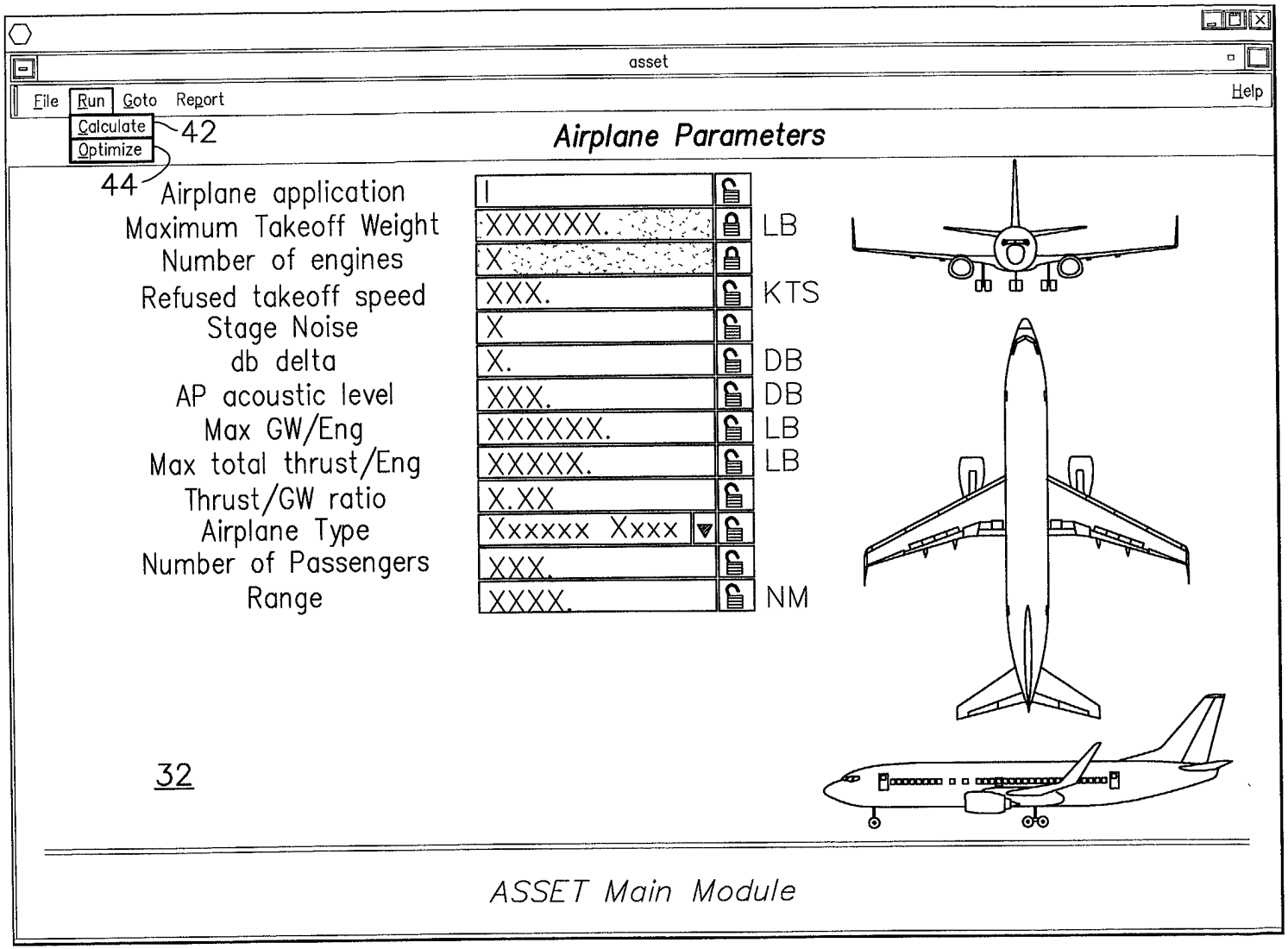

FIG. 3

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

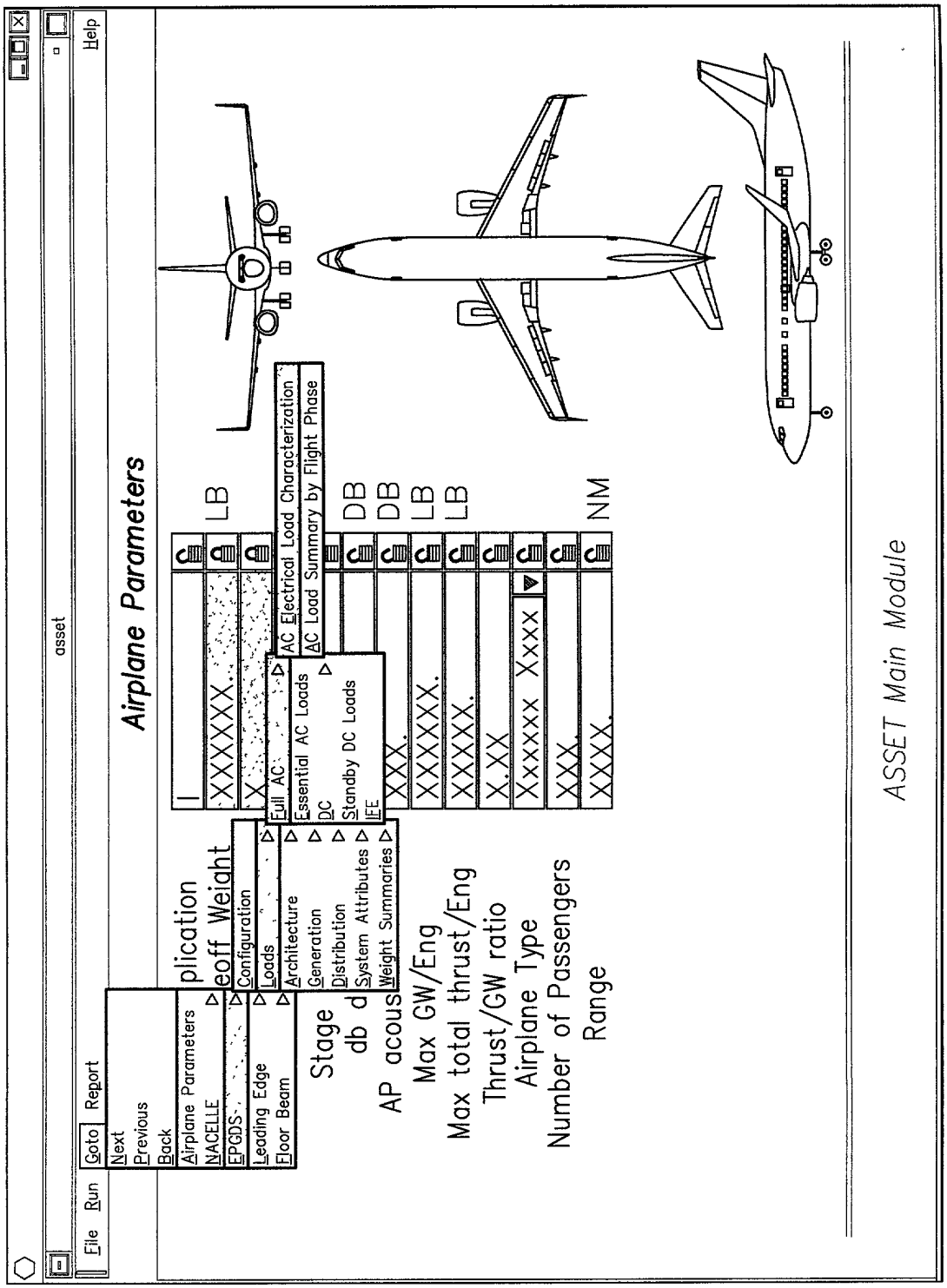
File Run Goto Report Help
Next
Previous
Back
asset
Airplane Parameters
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
Full AC
Essential AC Loads
DC
Standby DC Loads
IFE
AC Electrical Load Characterization
AC Load Summary by Flight Phase
plication
eoff Weight
Stage
db d
AP acous
Max GW/Eng
Max total thrust/Eng
Thrust/GW ratio
Airplane Type
Number of Passengers
Range
XXXXX.
X
XXX.
XXXXX.
XXXXX.
X.XX
Xxxxx Xxxx
XXX.
XXXX.
LB
DB
DB
LB
LB
NM
ASSET Main Module

FIG. 4

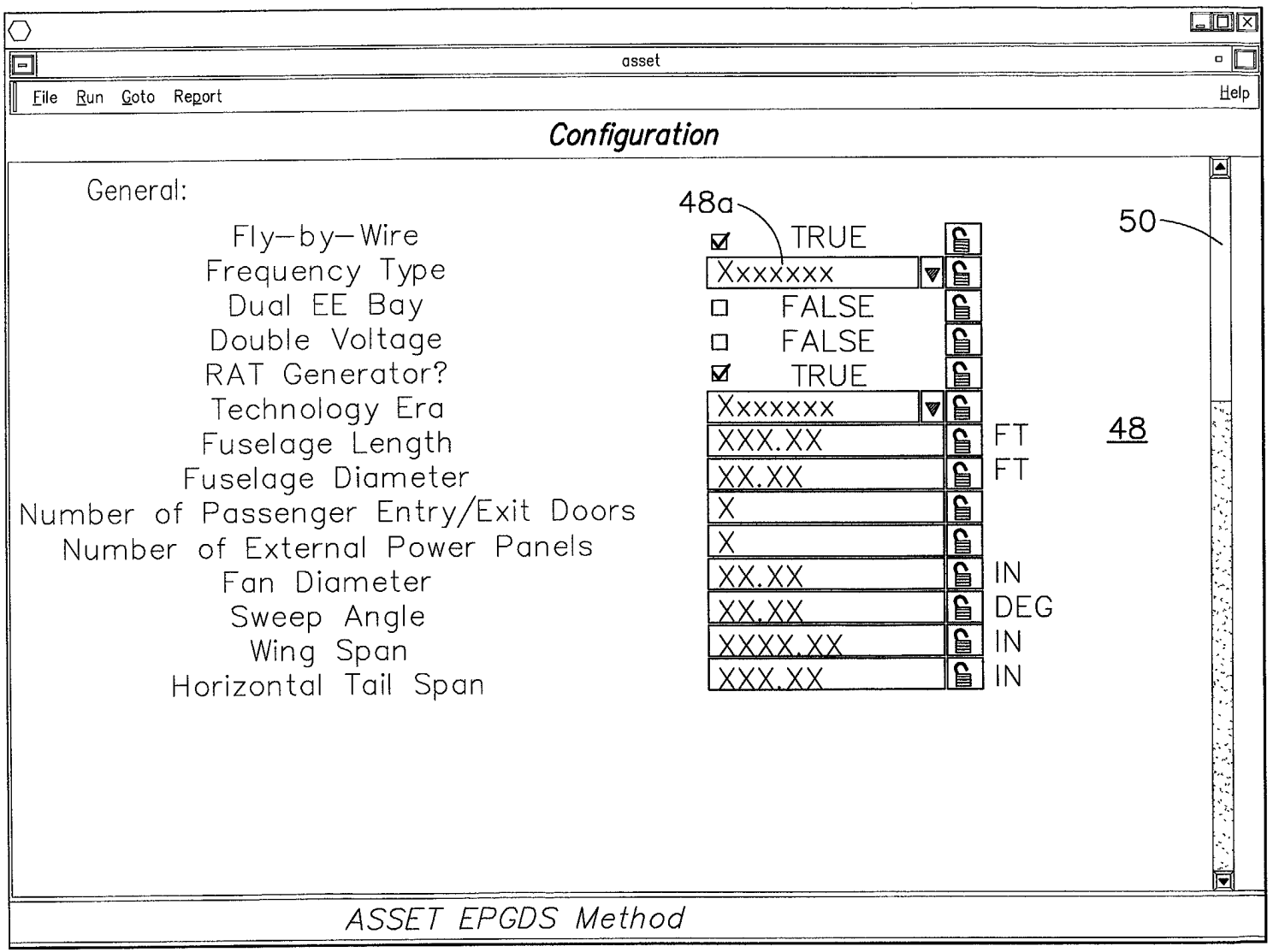

FIG. 5A

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

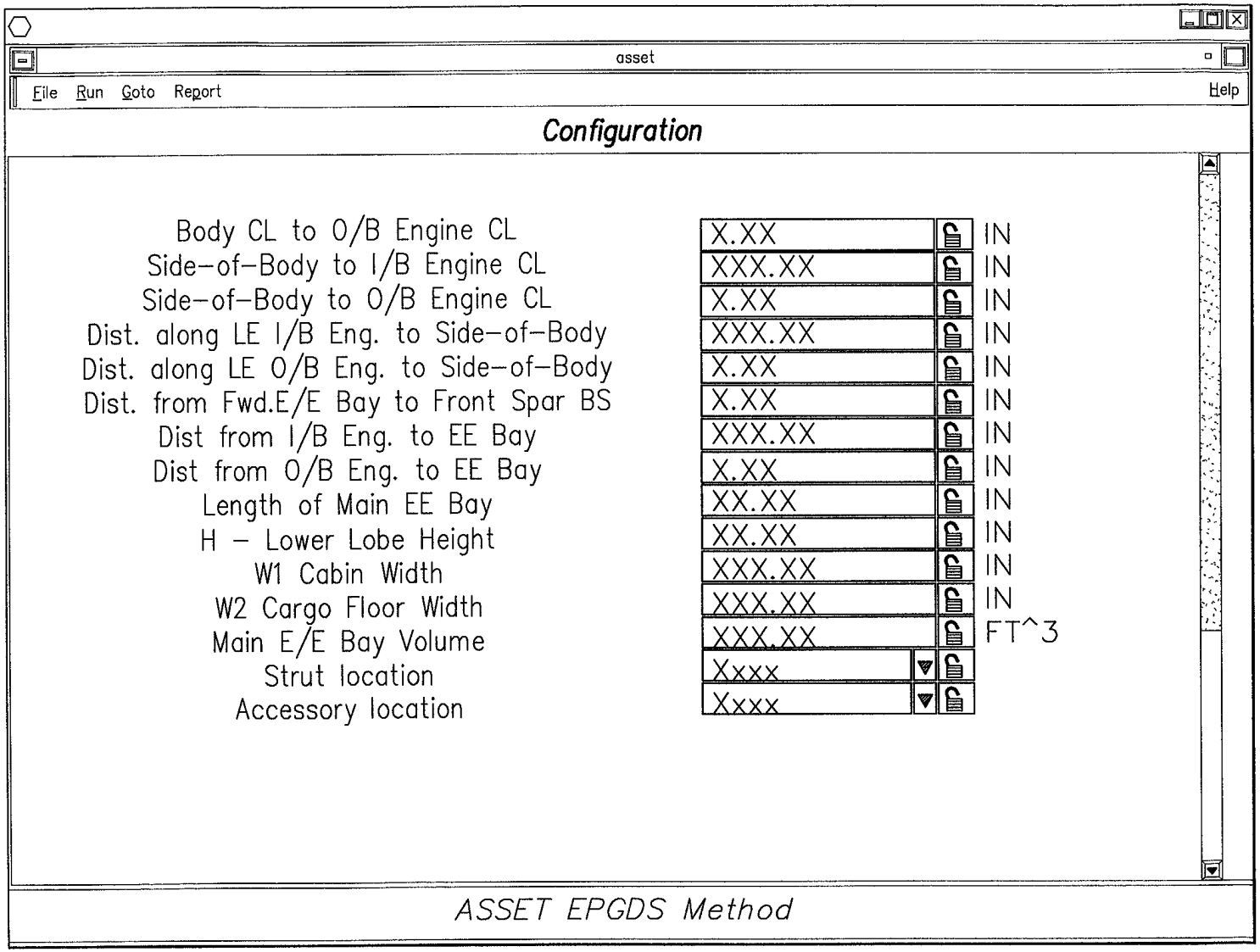

FIG. 5B

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

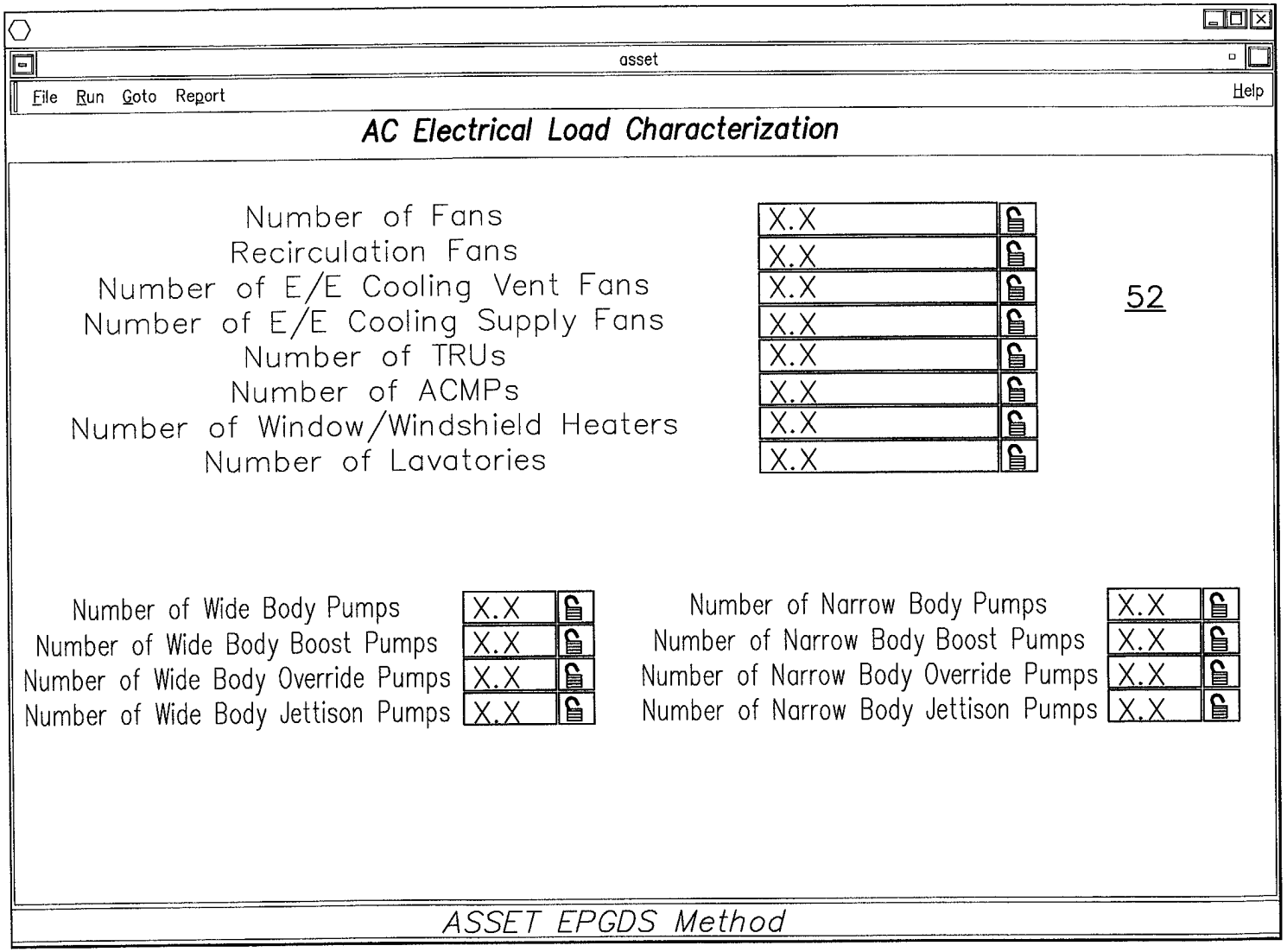

FIG. 6

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

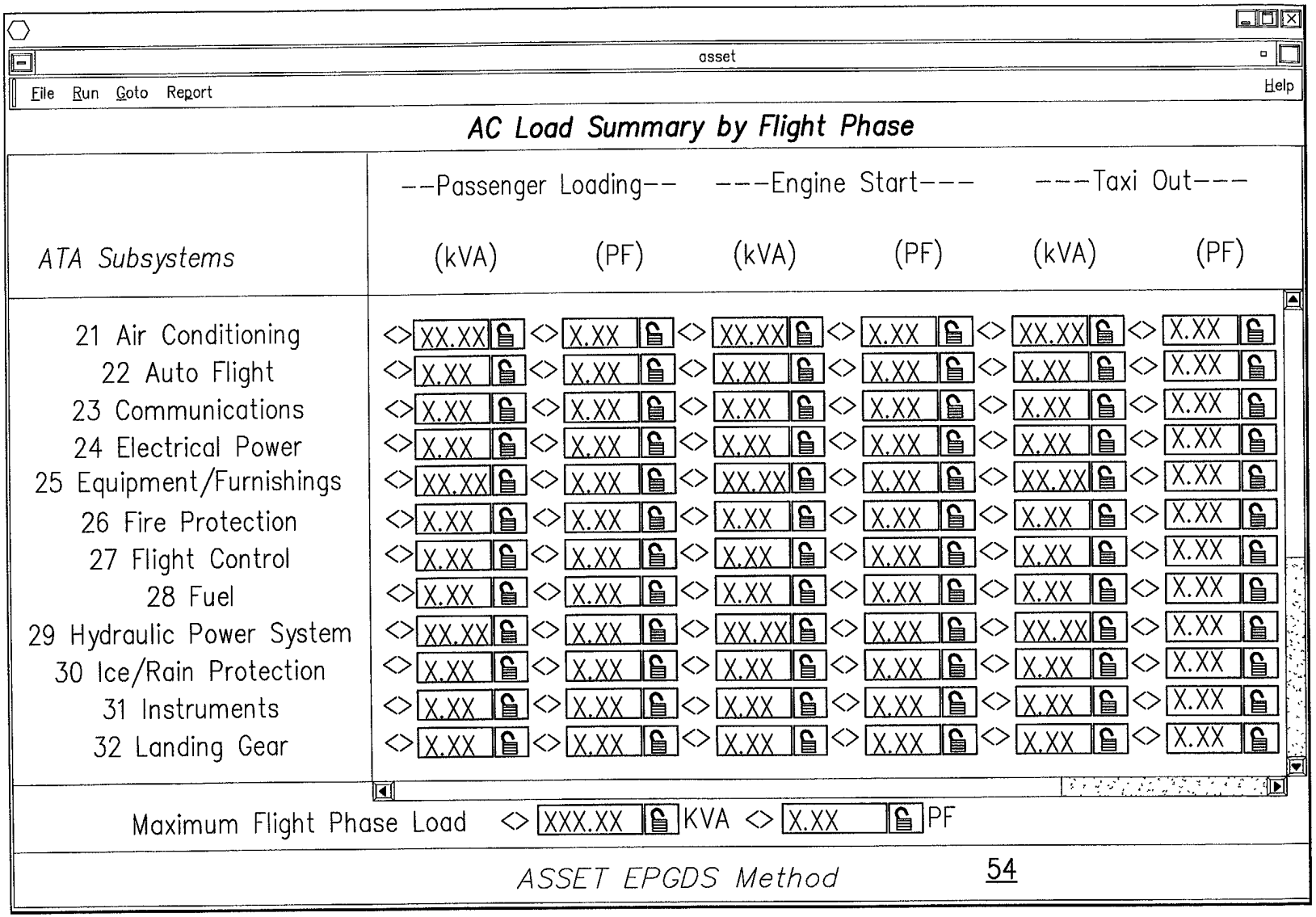

FIG. 7A

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

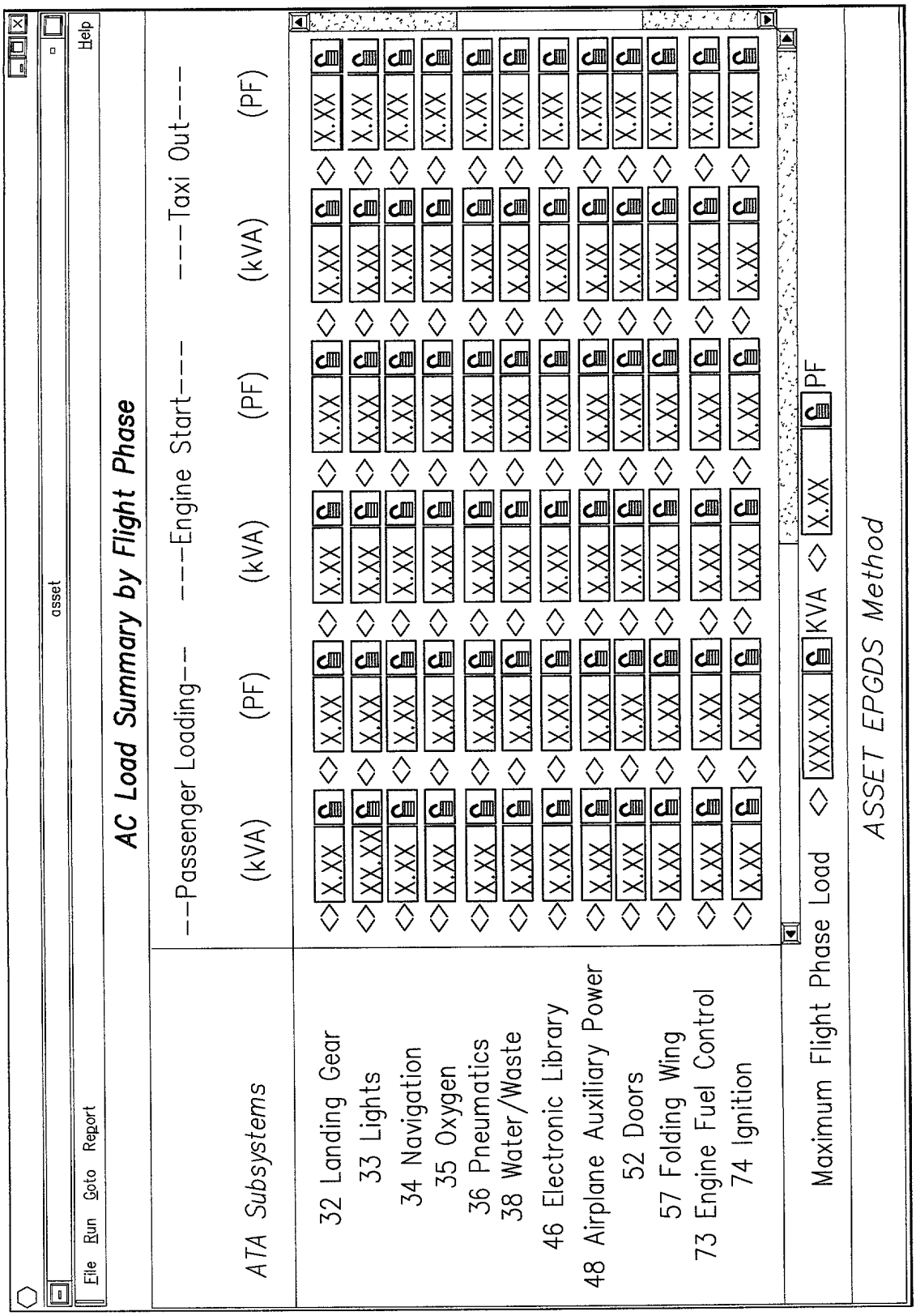
asset
File Run Goto Report Help
AC Load Summary by Flight Phase
ATA Subsystems
--Passenger Loading--
---Engine Start---
---Taxi Out---
(kVA) (PF) (kVA) (PF) (kVA) (PF)
32 Landing Gear
33 Lights
34 Navigation
35 Oxygen
36 Pneumatics
38 Water/Waste
46 Electronic Library
48 Airplane Auxiliary Power
52 Doors
57 Folding Wing
73 Engine Fuel Control
74 Ignition
Maximum Flight Phase Load
XXX.XX KVA X.XX PF
ASSET EPGDS Method

FIG. 7B

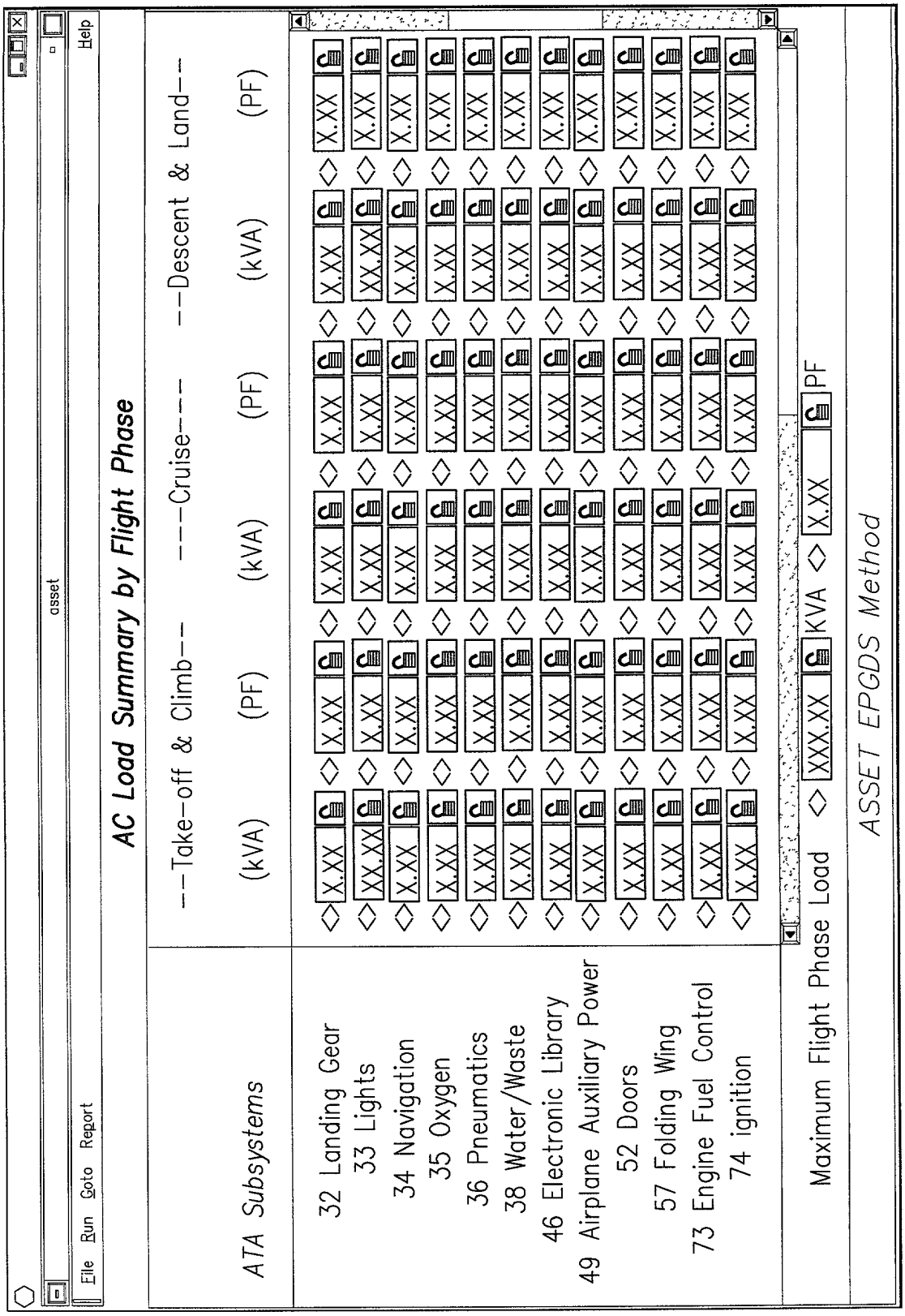
asset
File Run Goto Report Help
AC Load Summary by Flight Phase
ATA Subsystems
--Take-off & Climb--
---Cruise---
--Descent & Land--
(kVA) (PF) (kVA) (PF) (kVA) (PF)
32 Landing Gear
33 Lights
34 Navigation
35 Oxygen
36 Pneumatics
38 Water/Waste
46 Electronic Library
49 Airplane Auxiliary Power
52 Doors
57 Folding Wing
73 Engine Fuel Control
74 ignition
Maximum Flight Phase Load
XXX.XX
KVA
X.XX
PF
ASSET EPGDS Method

FIG. 7C

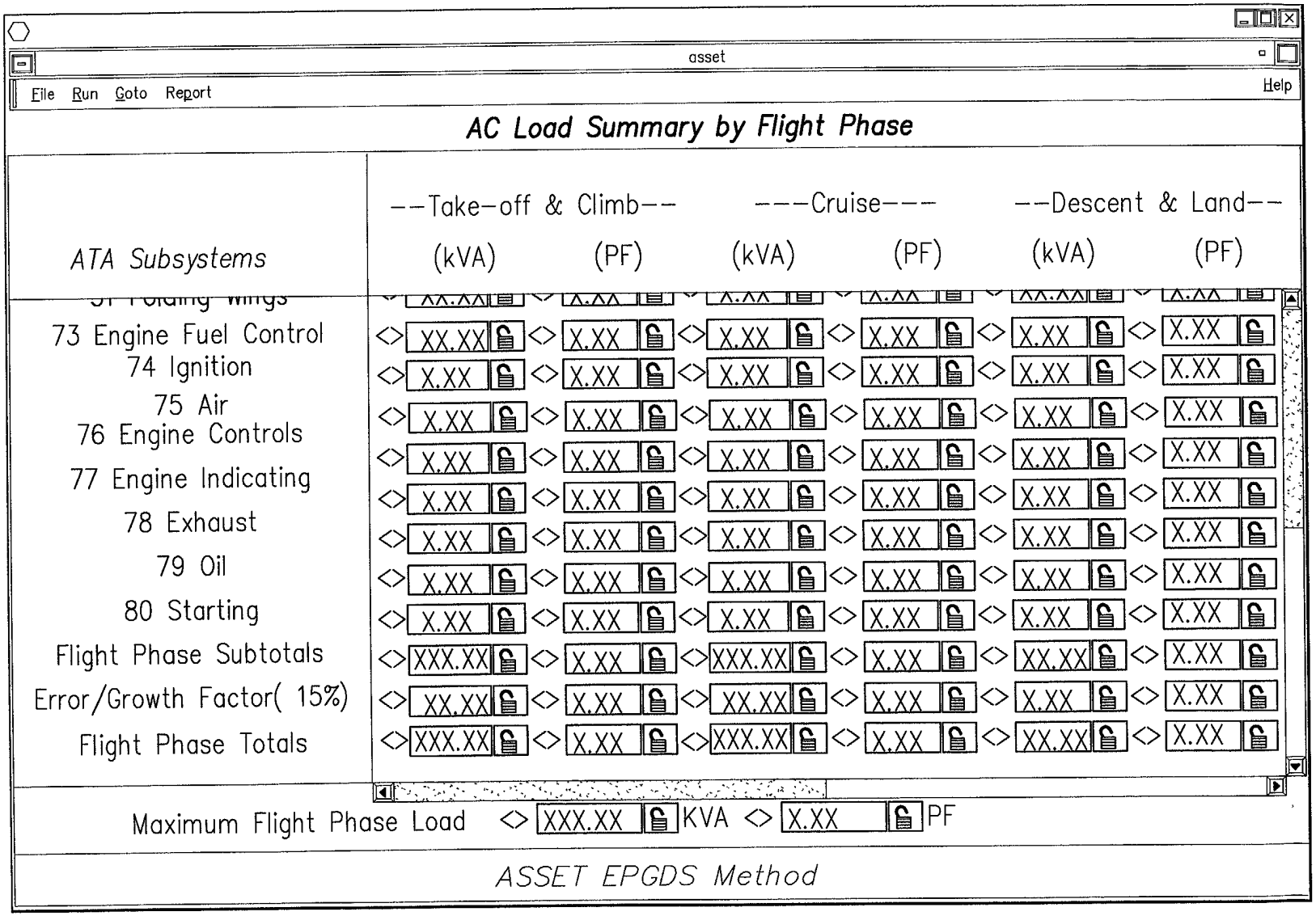

FIG. 7D

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

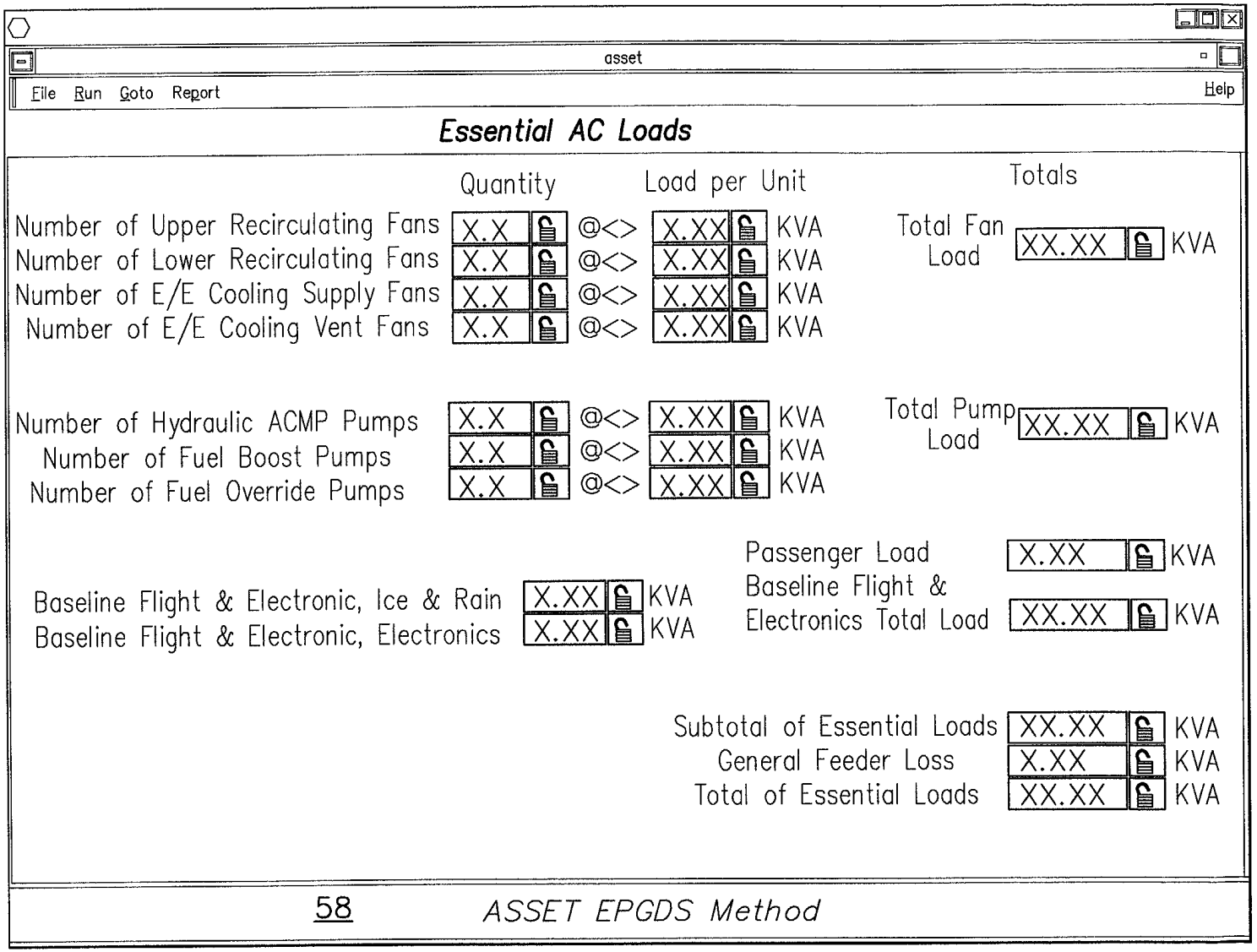

FIG. 8

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

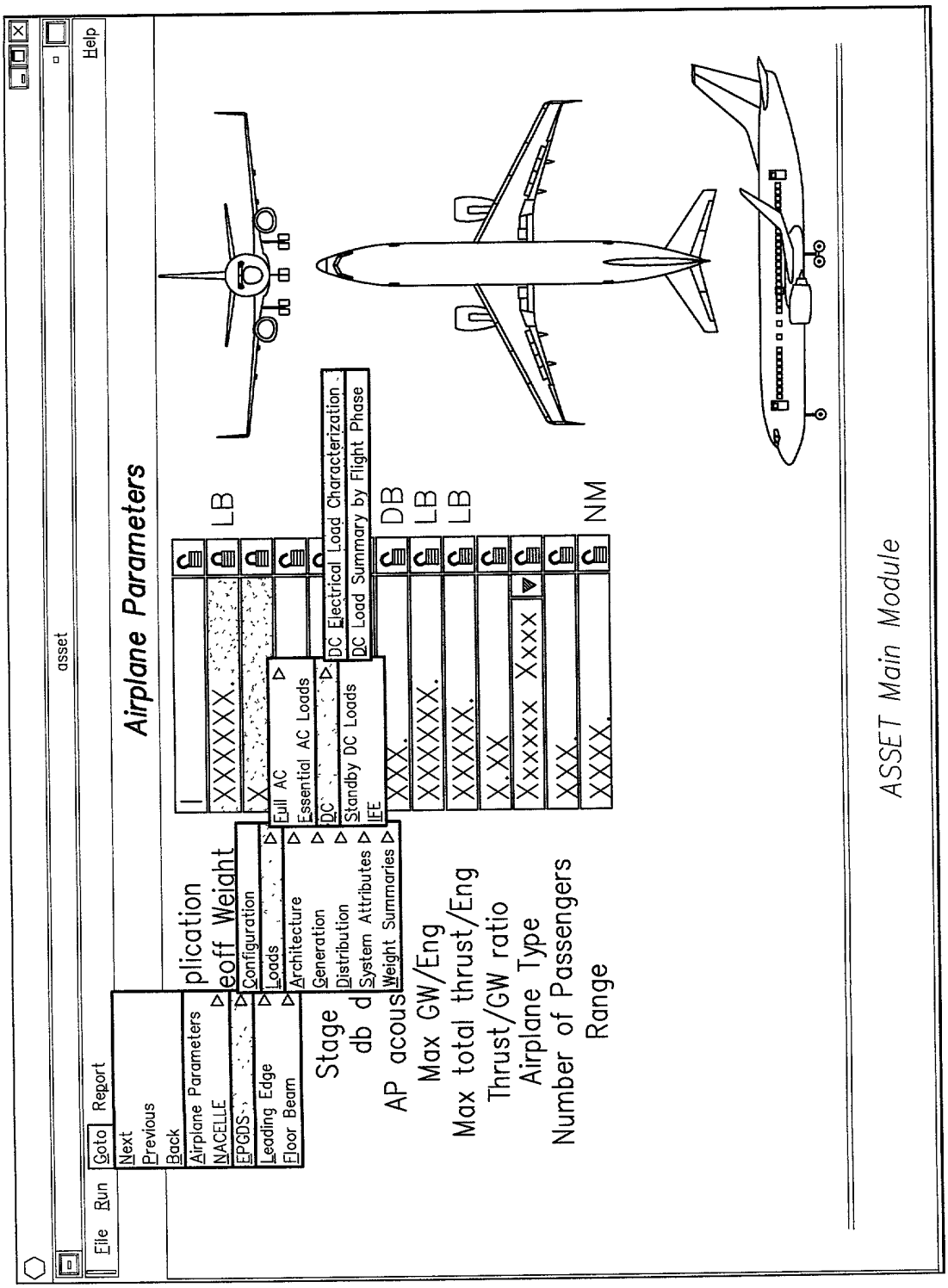
asset
File Run Help
Goto Report
Next
Previous
Back
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
plication
eoff Weight
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
Stage
db d
AP acous
Max GW/Eng
Max total thrust/Eng
Thrust/GW ratio
Airplane Type
Number of Passengers
Range
Full AC
Essential AC Loads
DC
Standby DC Loads
LFE
DC Electrical Load Characterization
DC Load Summary by Flight Phase
XXXXXX.
X
XXX.
XXXXXX.
XXXXX.
X.XX
Xxxxxx Xxxx
XXX.
XXXX.
LB
DB
LB
LB
NM
Airplane Parameters
ASSET Main Module

FIG. 9

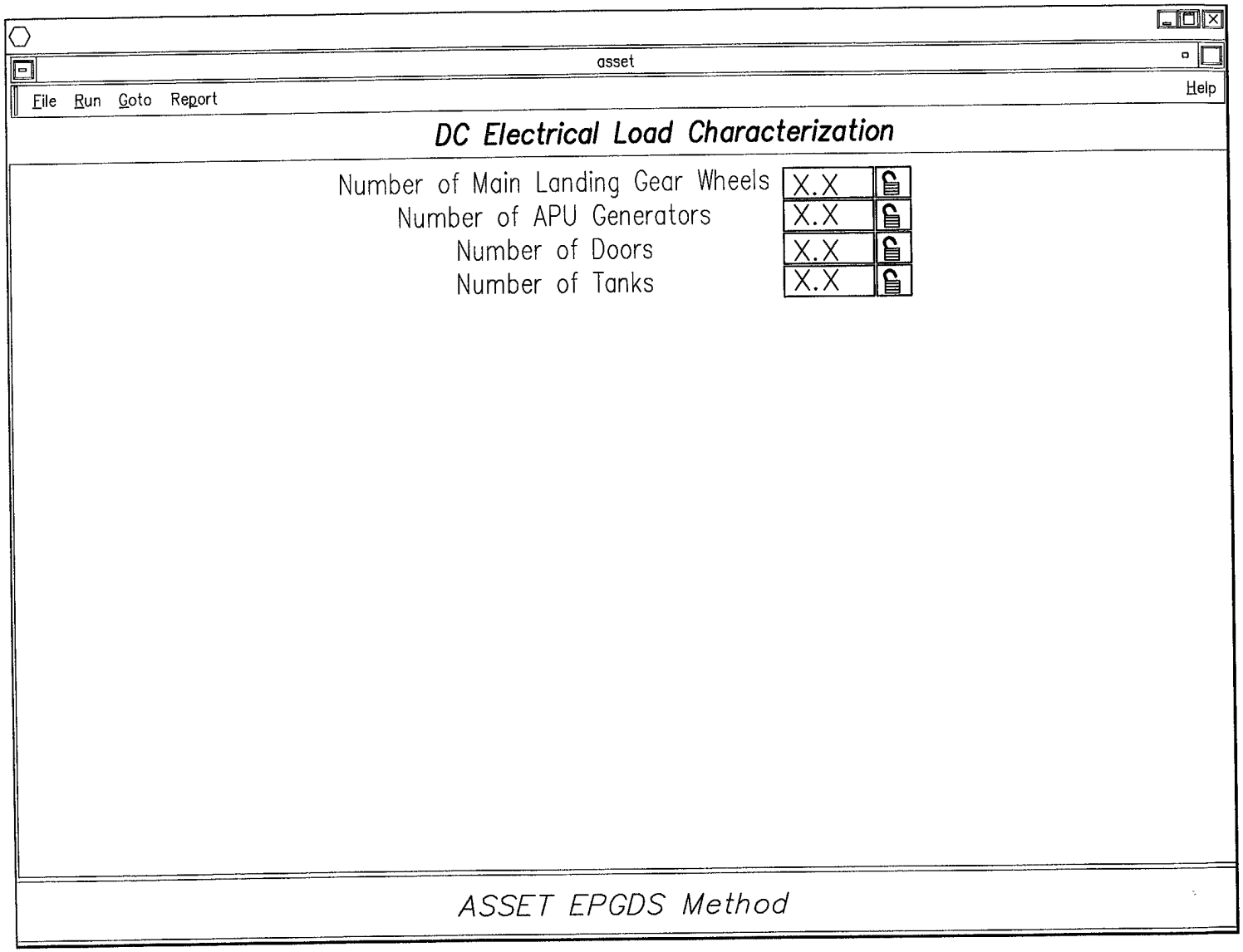

FIG. 10

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

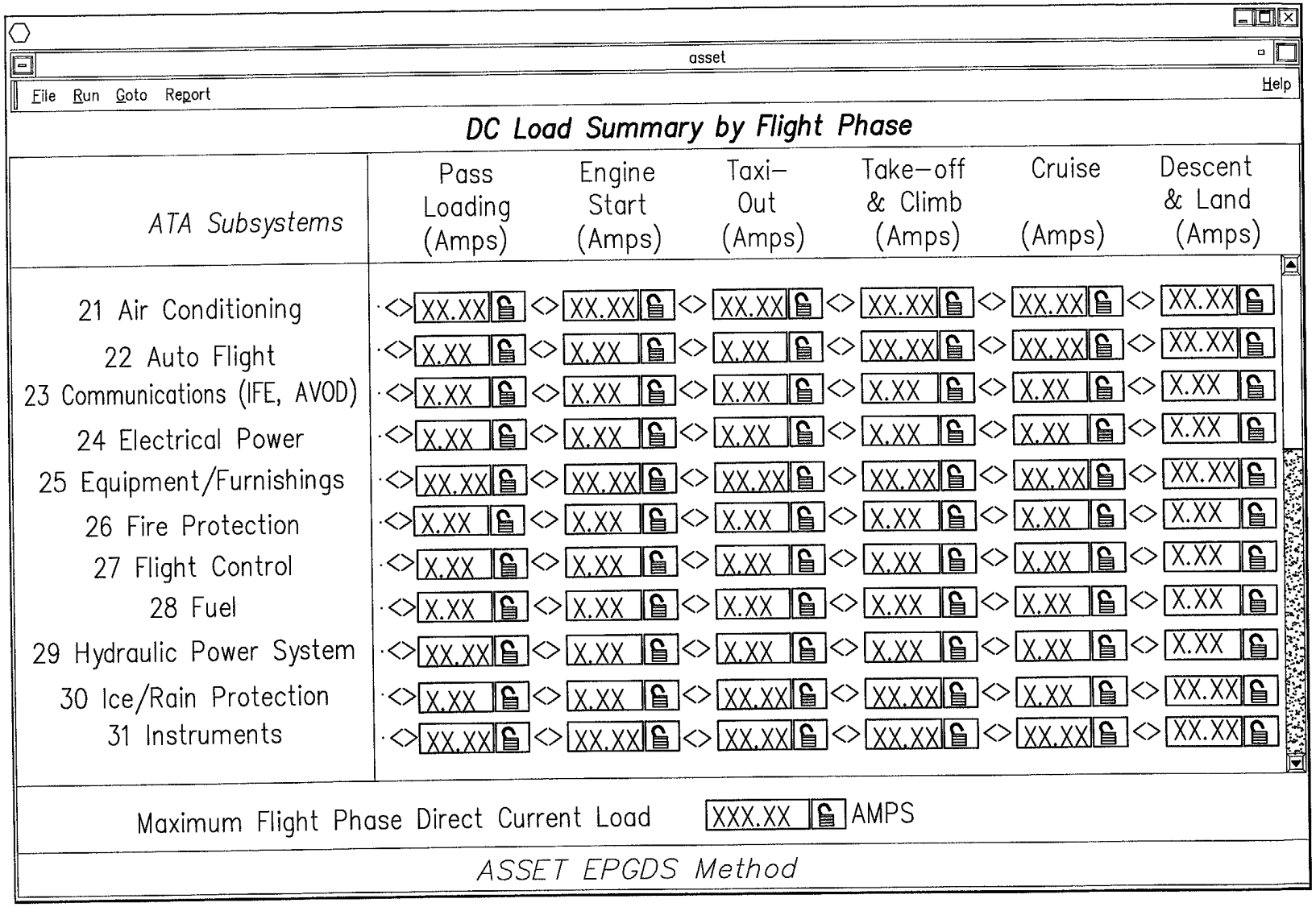

FIG. 11A

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

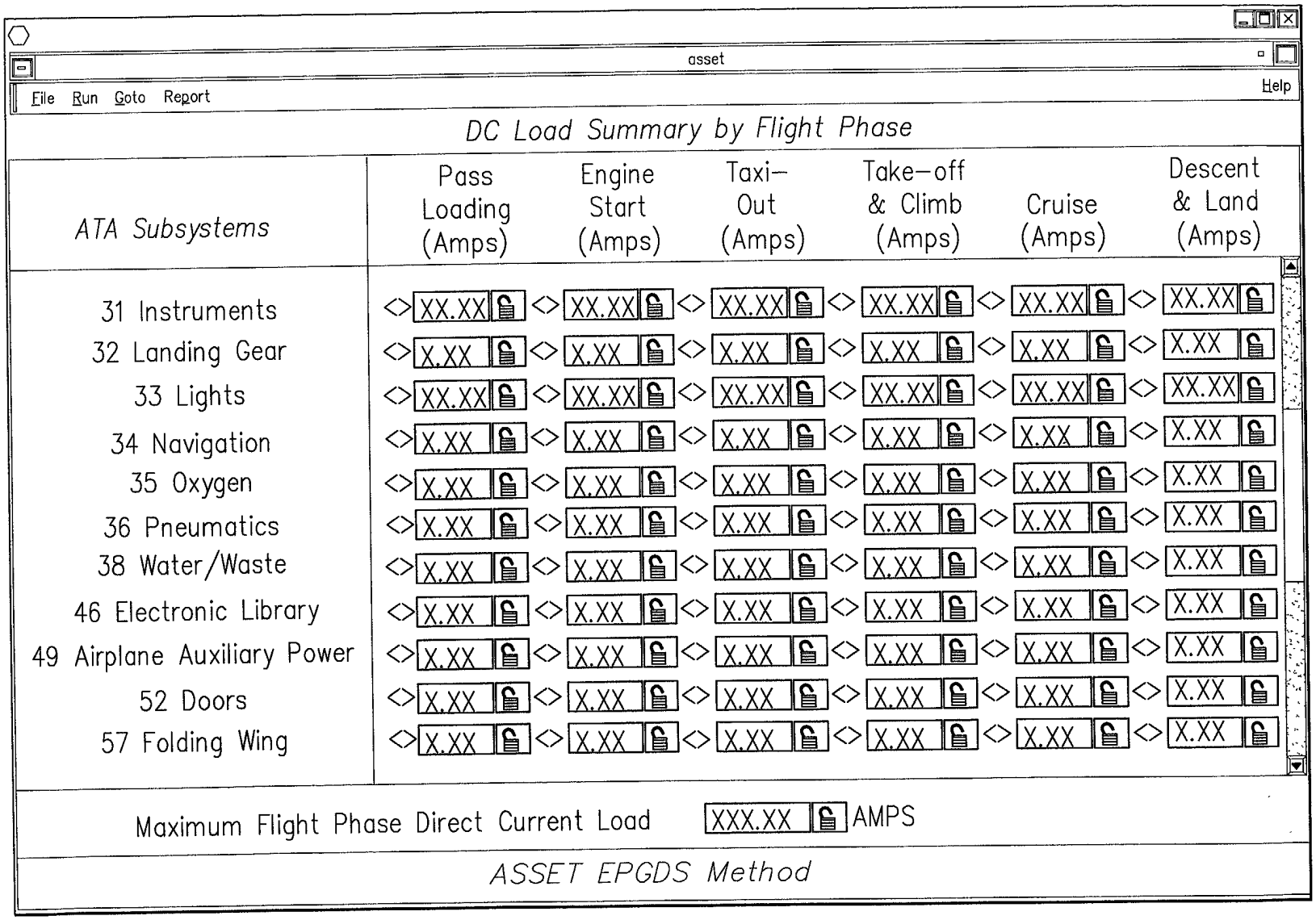

FIG. 11B

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

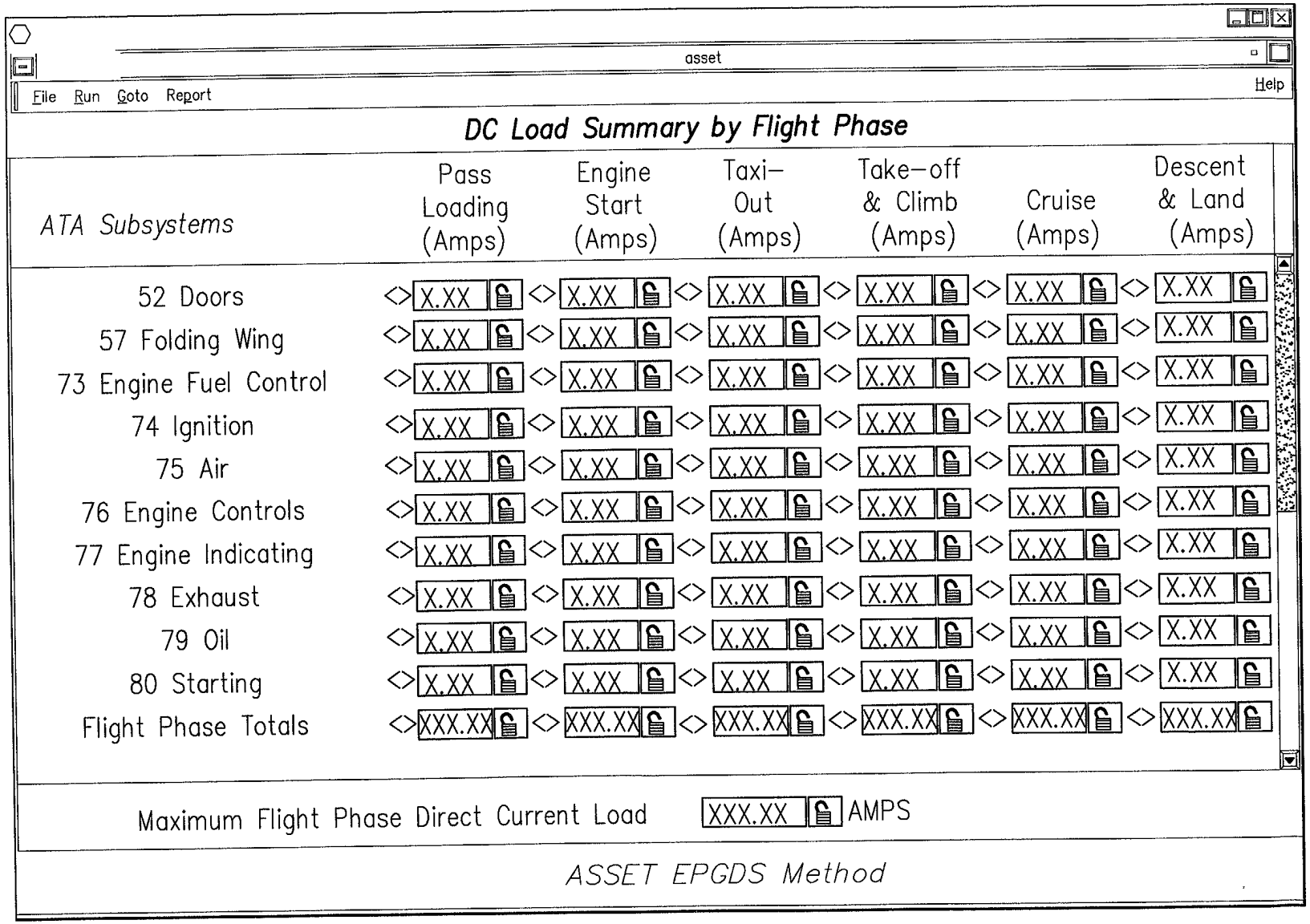

FIG. 11C

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

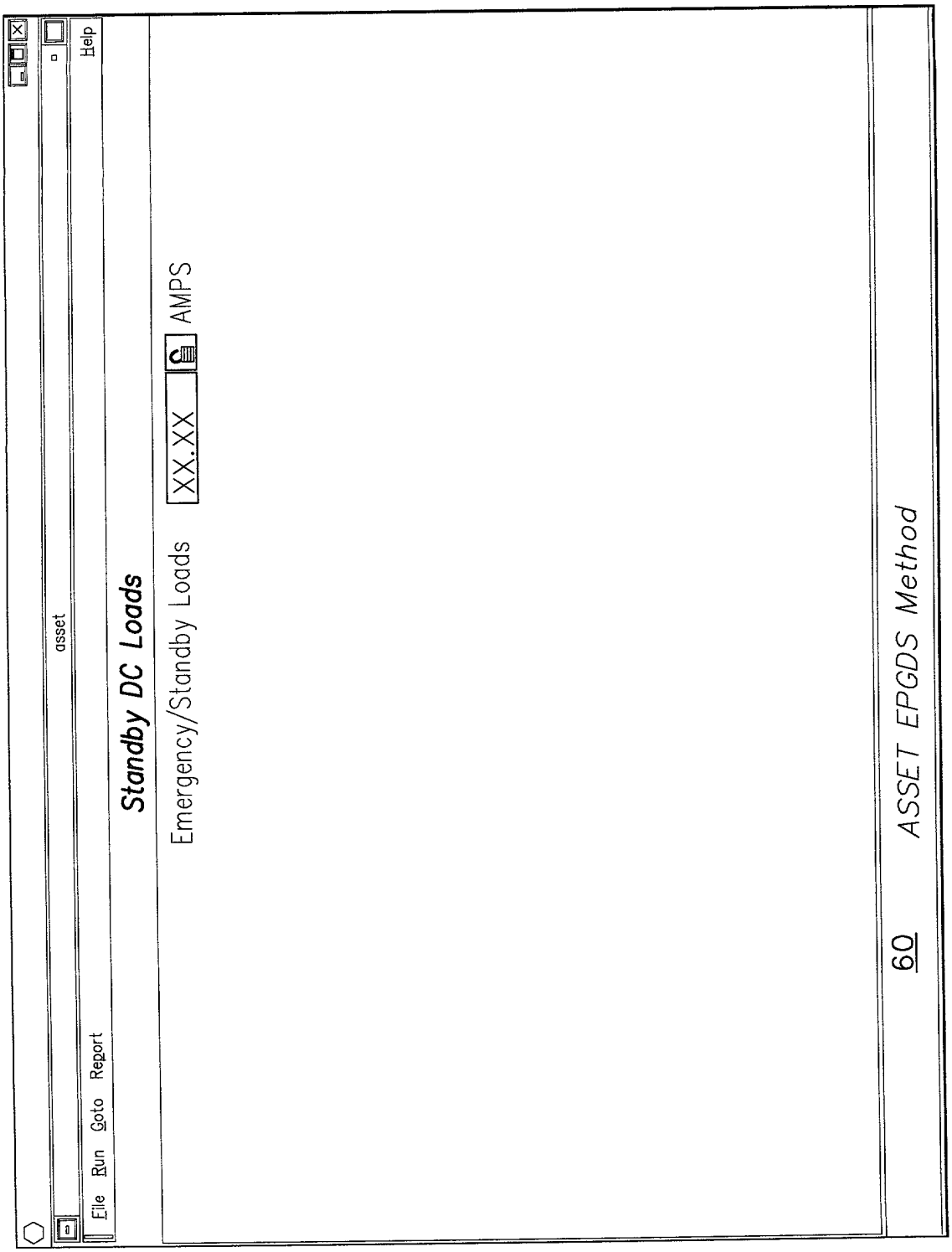

FIG. 12

DEPOSITED DRAWING

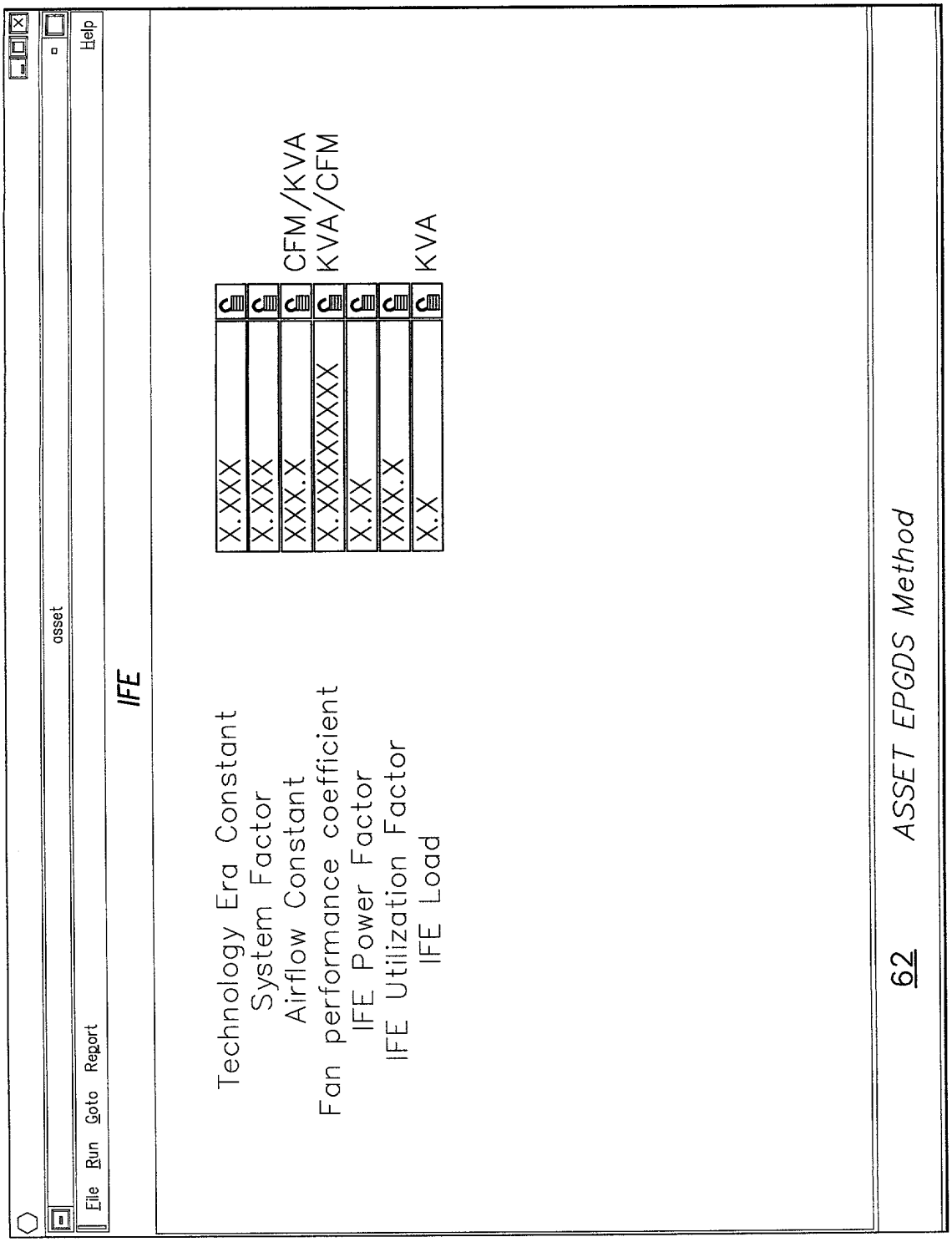
File Run Goto Report
Help
asset
IFE
Technology Era Constant
System Factor
Airflow Constant
Fan performance coefficient
IFE Power Factor
IFE Utilization Factor
IFE Load
X.XXX
X.XXX
XXX.X
X.XXXXXXXX
X.XX
XXX.X
X.X
CFM/KVA
KVA/CFM
KVA
62
ASSET EPGDS Method

FIG. 13

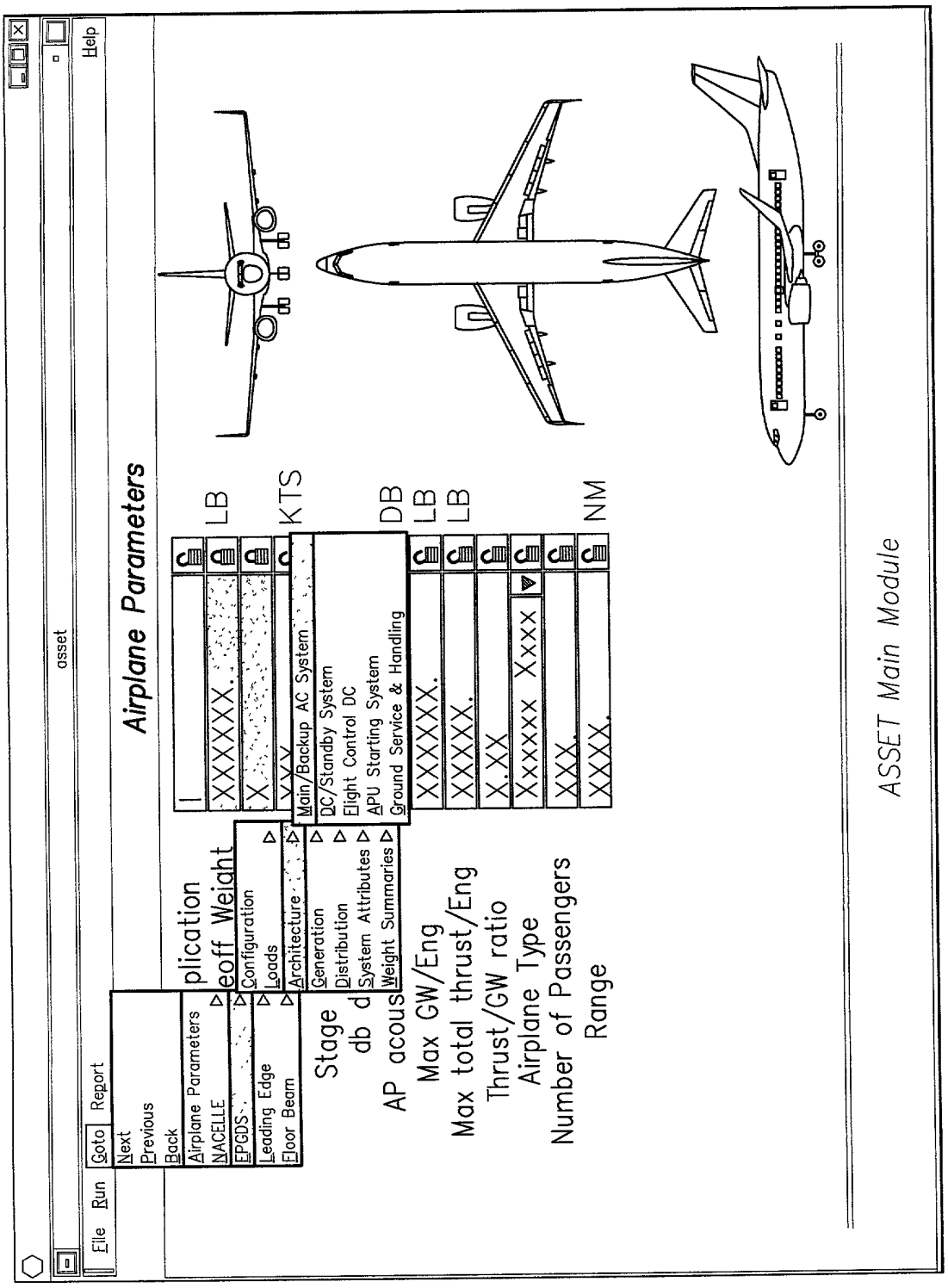
File Run
asset
Help
Goto Report
Next
Previous
Back
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
Main/Backup AC System
DC/Standby System
Flight Control DC
APU Starting System
Ground Service & Handling
Airplane Parameters
plication
eoff Weight
Stage
db d
AP acous
Max GW/Eng
Max total thrust/Eng
Thrust/GW ratio
Airplane Type
Number of Passengers
Range
XXXXXX.
X
VVV
XXXXXX.
XXXXX.
X.XX
Xxxxx Xxxx
XXX.
XXXX.
LB
KTS
DB
LB
LB
NM
ASSET Main Module

FIG. 14

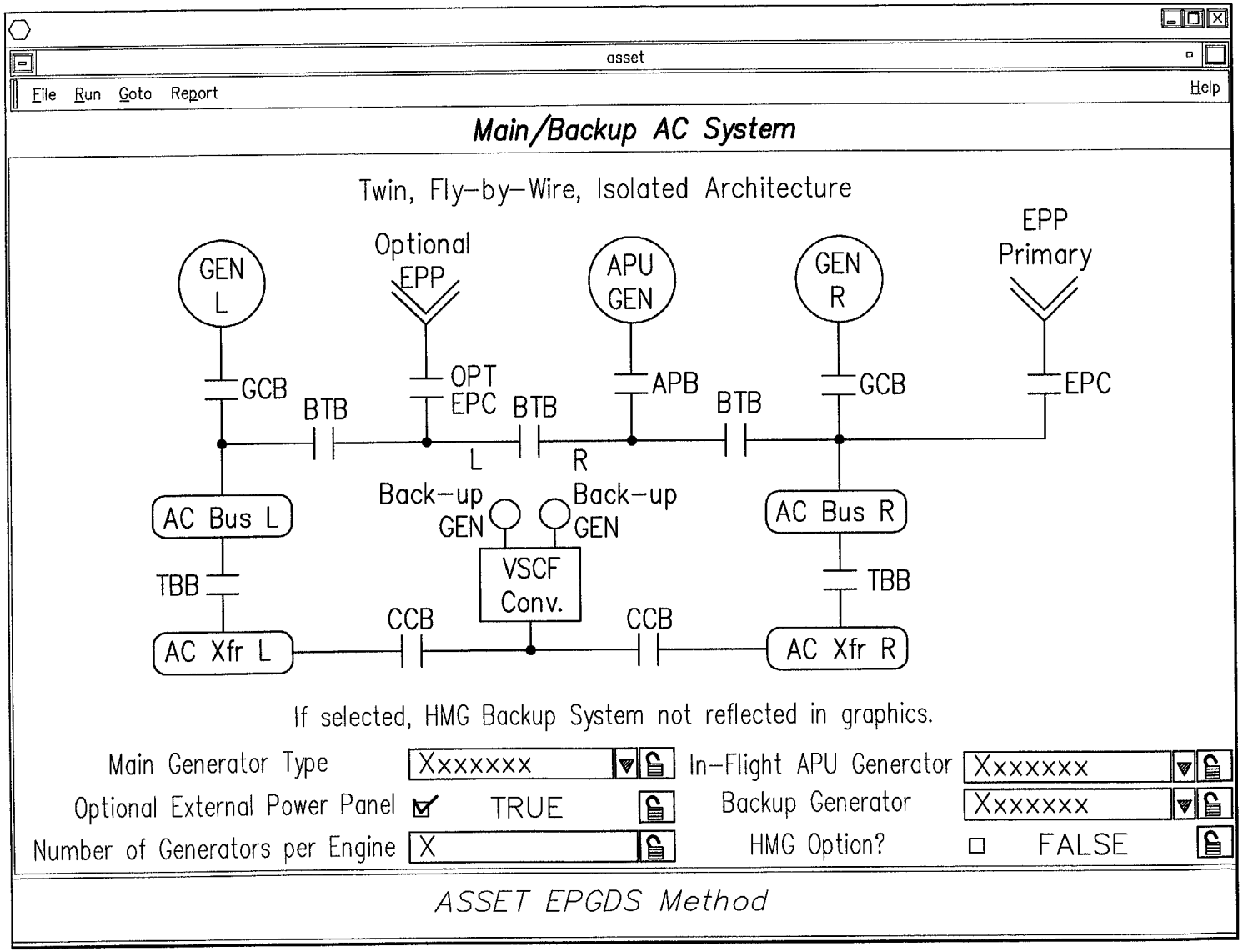

FIG. 15

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

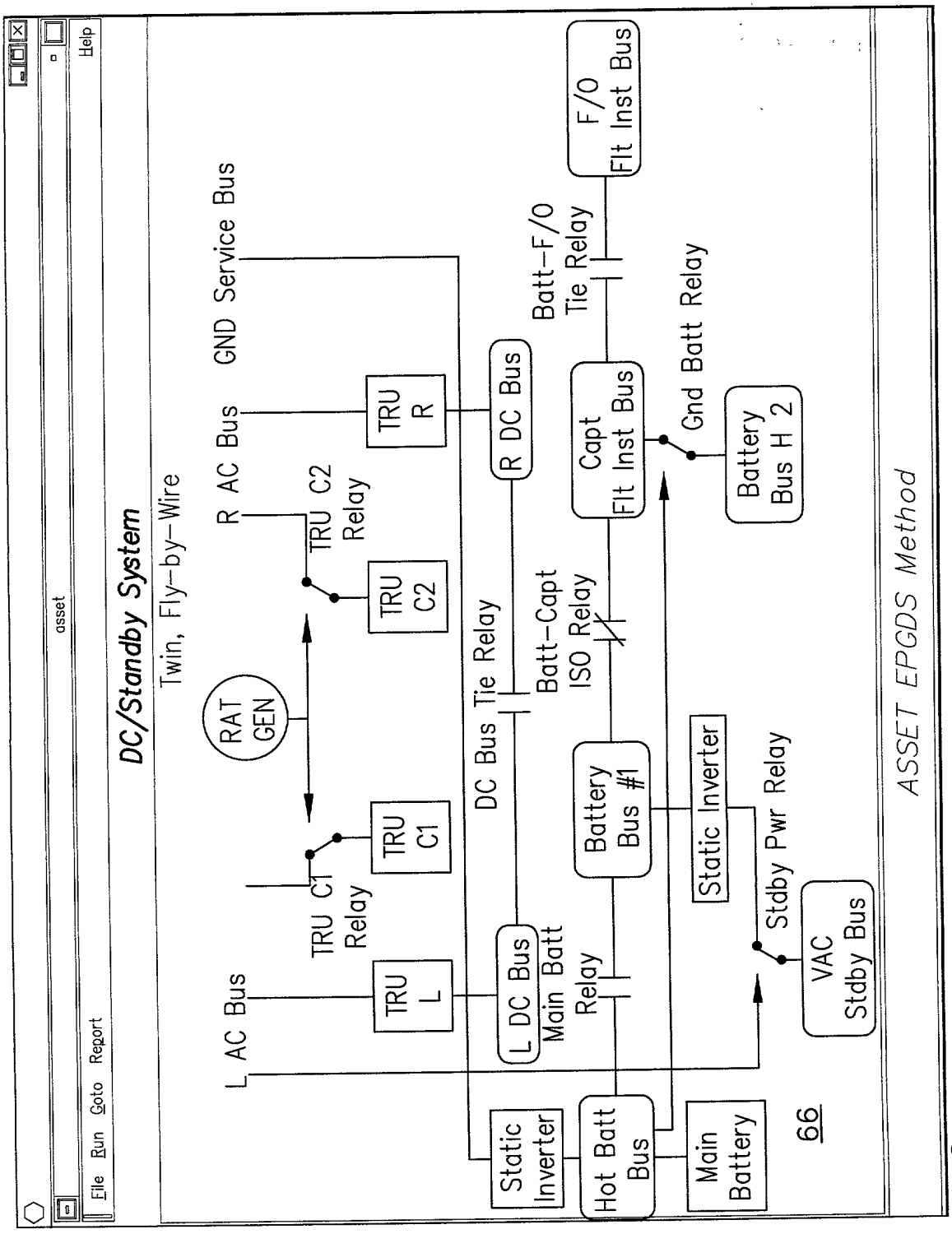
asset
File Run Goto Report Help
DC/Standby System
Twin, Fly-by-Wire
L AC Bus
R AC Bus
GND Service Bus
RAT GEN
TRU L
TRU R
TRU C1
TRU C2
TRU C1 Relay
TRU C2 Relay
L DC Bus
R DC Bus
DC Bus Tie Relay
Main Batt Relay
Batt-Capt ISO Relay
Batt-F/O Tie Relay
Gnd Batt Relay
Stdby Pwr Relay
Battery Bus #1
Battery Bus H 2
Capt Flt Inst Bus
F/O Flt Inst Bus
Static Inverter
Hot Batt Bus
Main Battery
VAC Stdby Bus
66
ASSET EPGDS Method

FIG. 16

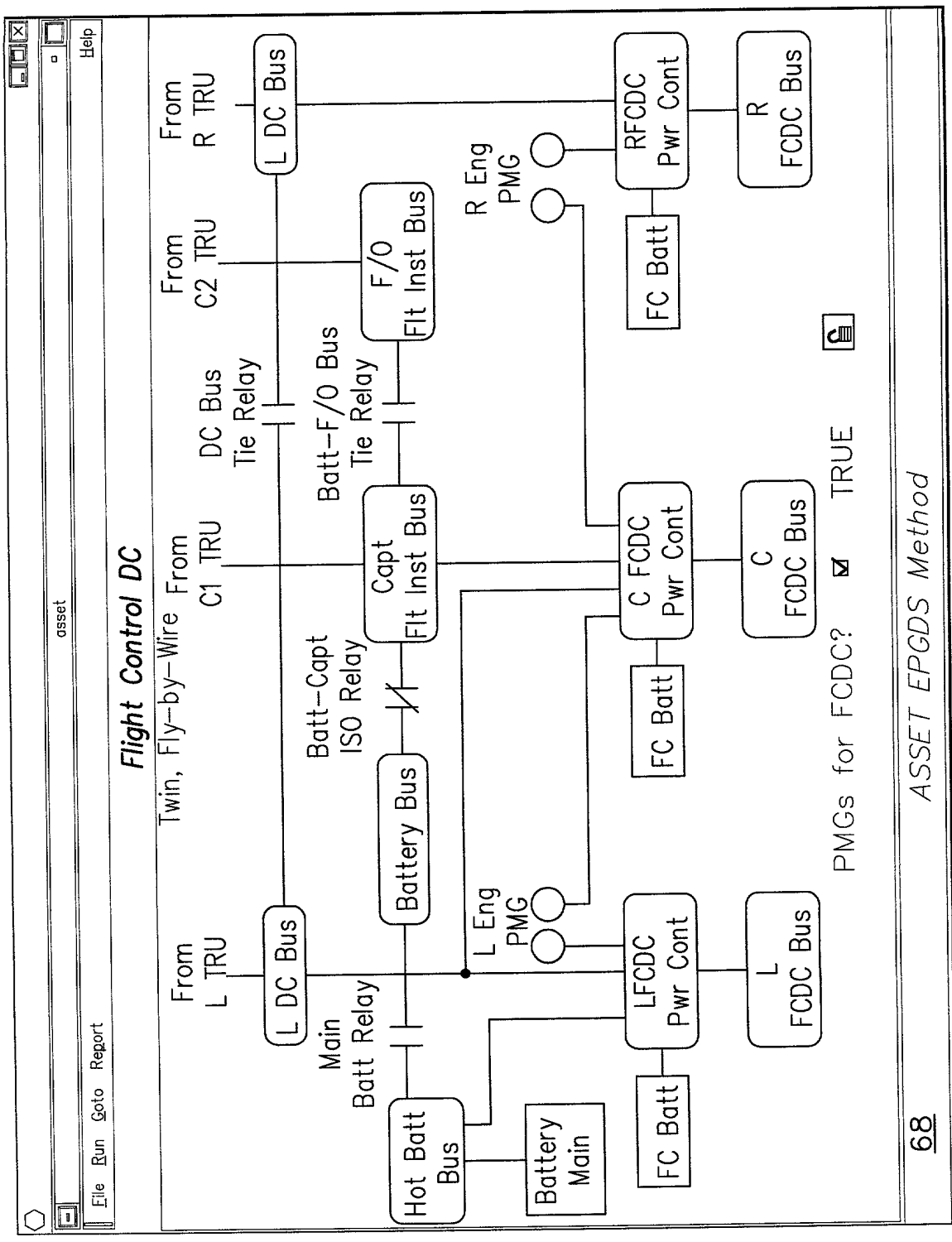
File Run Goto Report
Help
asset
Flight Control DC
Twin, Fly-by-Wire
From L TRU
From C1 TRU
From C2 TRU
From R TRU
L DC Bus
L DC Bus
Main Batt Relay
Batt-Capt ISO Relay
DC Bus Tie Relay
Batt-F/O Bus Tie Relay
Battery Bus
Capt Flt Inst Bus
F/O Flt Inst Bus
L Eng PMG
R Eng PMG
Hot Batt Bus
Battery Main
FC Batt
LFCDC Pwr Cont
C FCDC Pwr Cont
RFCDC Pwr Cont
FC Batt
FC Batt
L FCDC Bus
C FCDC Bus
R FCDC Bus
PMGs for FCDC?
TRUE
68
ASSET EPGDS Method

FIG. 17

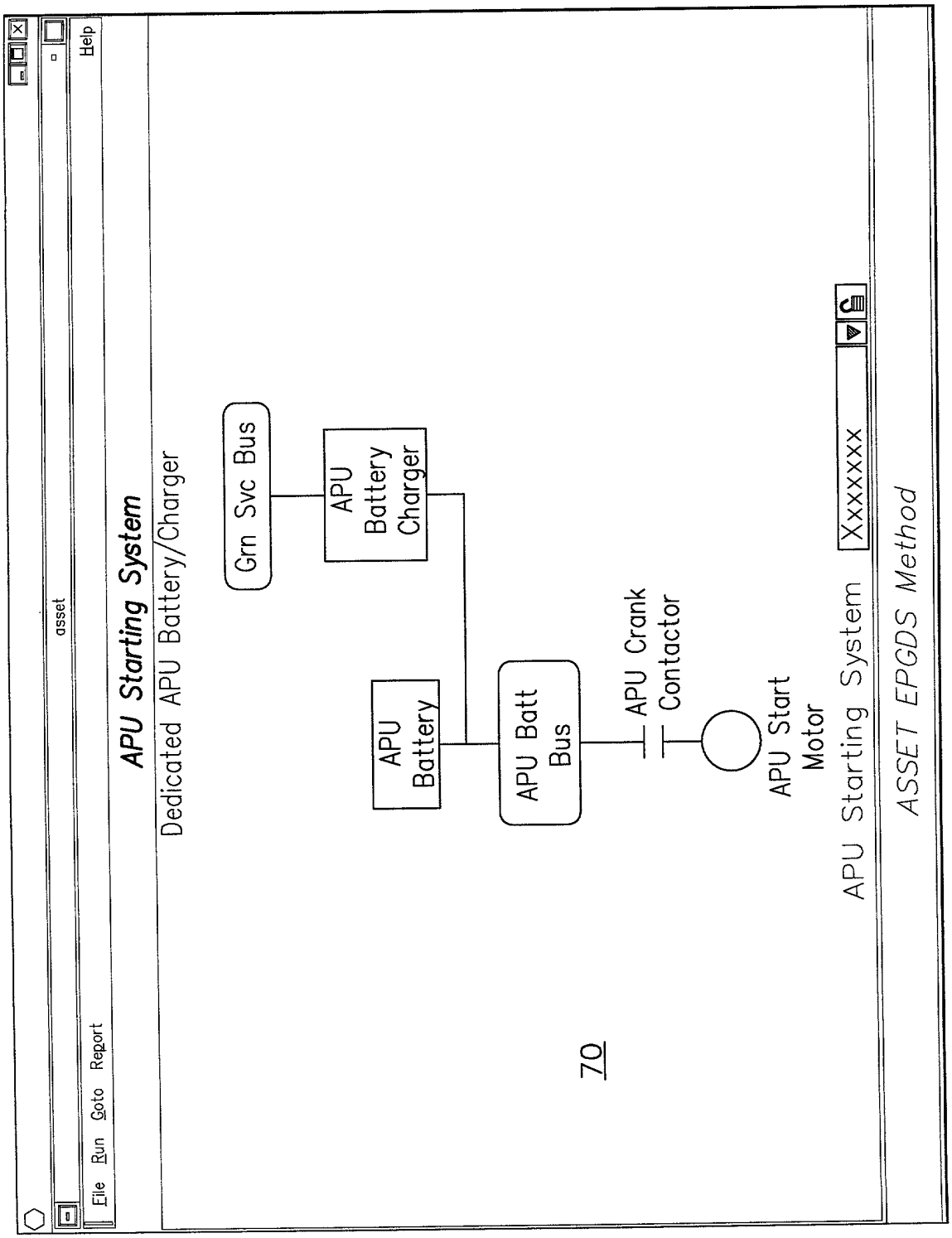
File Run Goto Report
Help
asset
APU Starting System
Dedicated APU Battery/Charger
Grn Svc Bus
APU Battery Charger
APU Battery
APU Batt Bus
APU Crank Contactor
APU Start Motor
70
APU Starting System
Xxxxxxx
ASSET EPGDS Method

FIG. 18

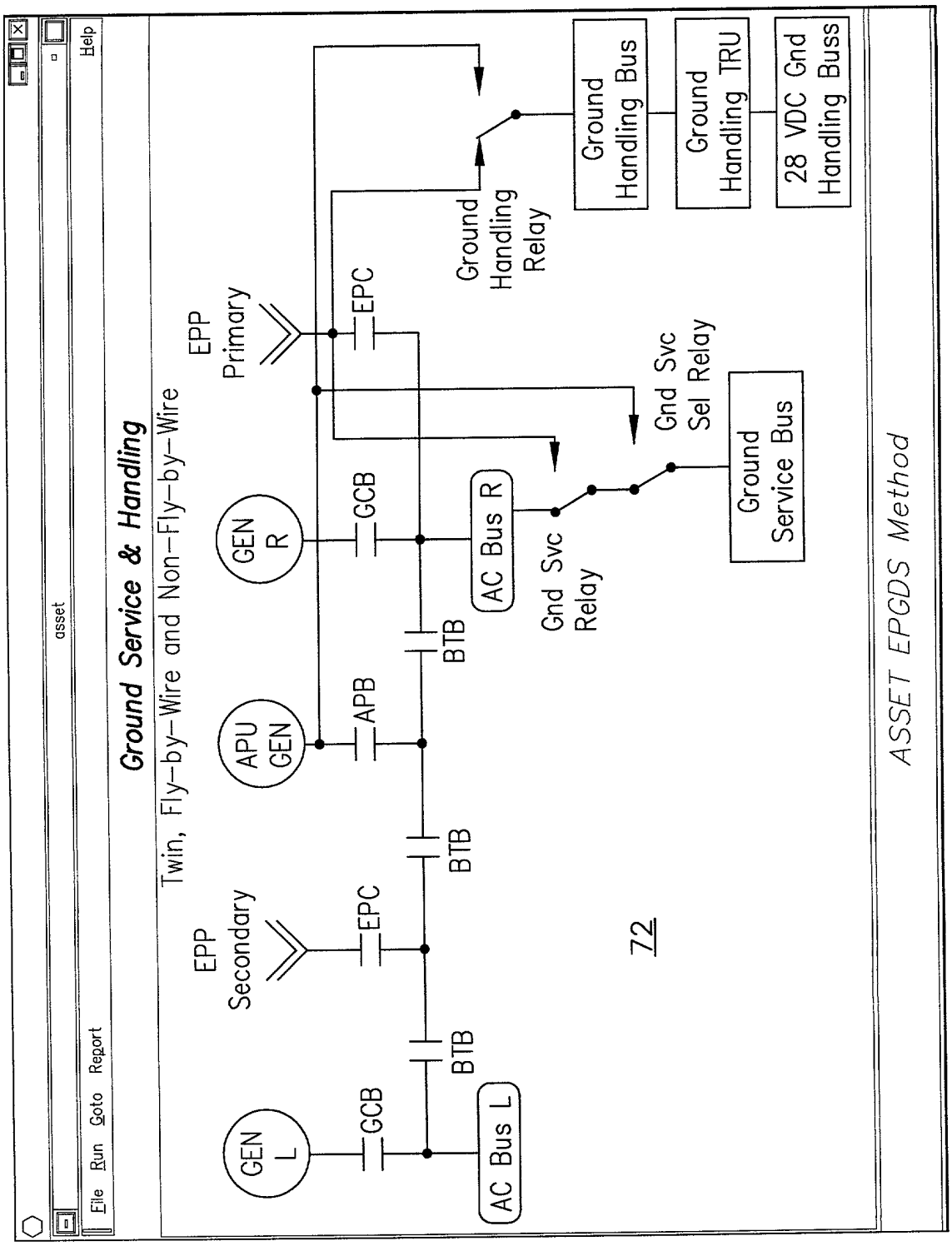
File Run Goto Report
Help
asset
Ground Service & Handling
Twin, Fly-by-Wire and Non-Fly-by-Wire
EPP Primary
EPP Secondary
EPC
EPC
GCB
GCB
GCB
APB
BTB
BTB
BTB
GEN L
GEN R
APU GEN
AC Bus L
AC Bus R
Gnd Svc Relay
Gnd Svc Sel Relay
Ground Service Bus
Ground Handling Relay
Ground Handling Bus
Ground Handling TRU
28 VDC Gnd Handling Buss
72
ASSET EPGDS Method

FIG. 19

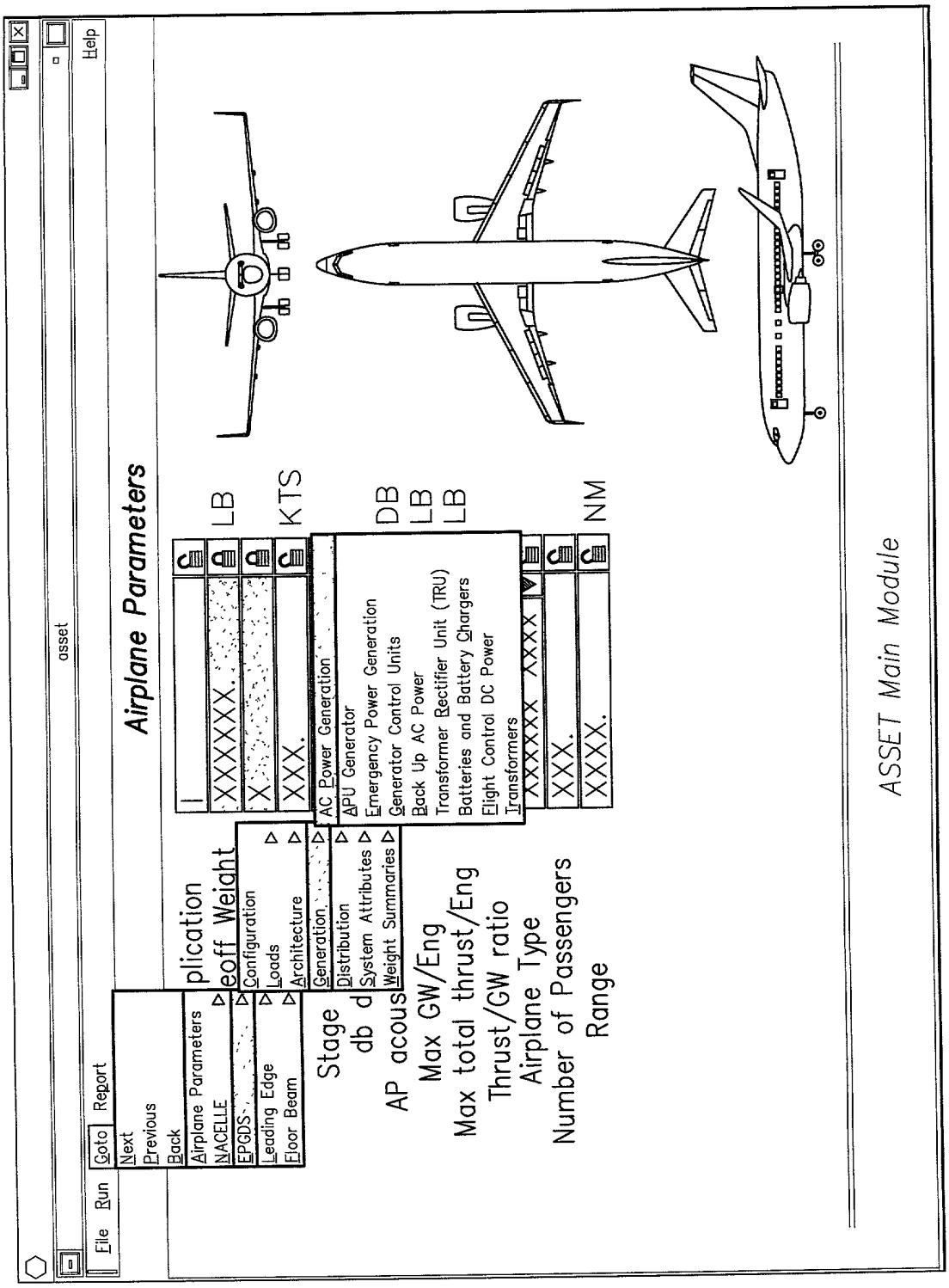
File Run
asset
Help
Goto Report
Next
Previous
Back
Airplane Parameters
plication
eoff Weight
Configuration
Loads
Architecture
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
Generation
Distribution
System Attributes
Weight Summaries
Stage
db d
AP acous
Max GW/Eng
Max total thrust/Eng
Thrust/GW ratio
Airplane Type
Number of Passengers
Range
XXXXXX.
X
XXX.
XXXXXX
XXXX
XXX.
XXXX.
LB
KTS
DB
LB
LB
NM
AC Power Generation
APU Generator
Emergency Power Generation
Generator Control Units
Back Up AC Power
Transformer Rectifier Unit (TRU)
Batteries and Battery Chargers
Flight Control DC Power
Transformers
ASSET Main Module

FIG. 20

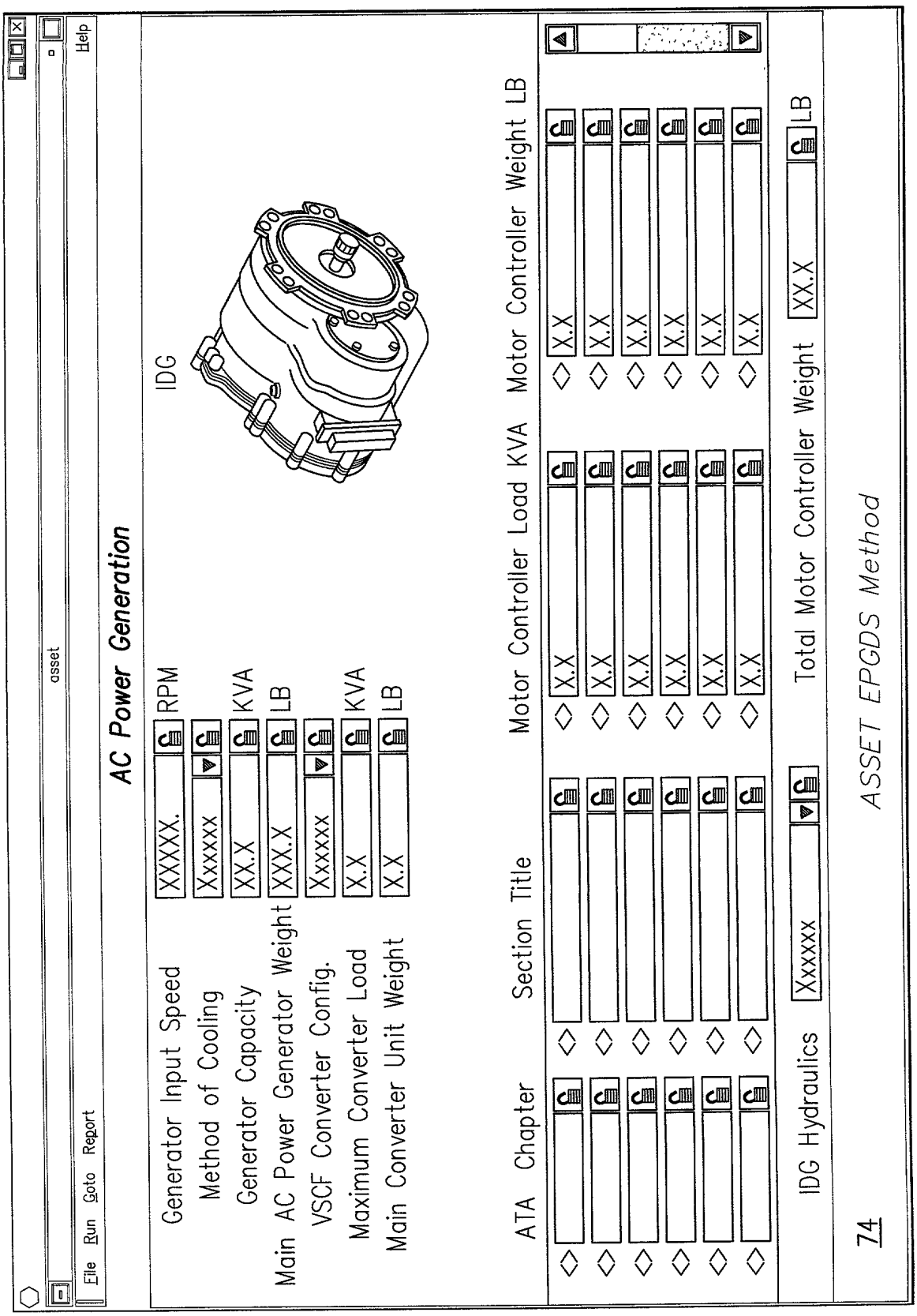
asset
File Run Goto Report
Help
AC Power Generation
IDG
Generator Input Speed XXXXX. RPM
Method of Cooling Xxxxx
Generator Capacity XX.X KVA
Main AC Power Generator Weight XXX.X LB
VSCF Converter Config. Xxxxx
Maximum Converter Load X.X KVA
Main Converter Unit Weight X.X LB
ATA Chapter
Section Title
Motor Controller Load KVA
Motor Controller Weight LB
X.X
IDG Hydraulics Xxxxx
Total Motor Controller Weight XX.X LB
74
ASSET EPGDS Method

FIG. 21

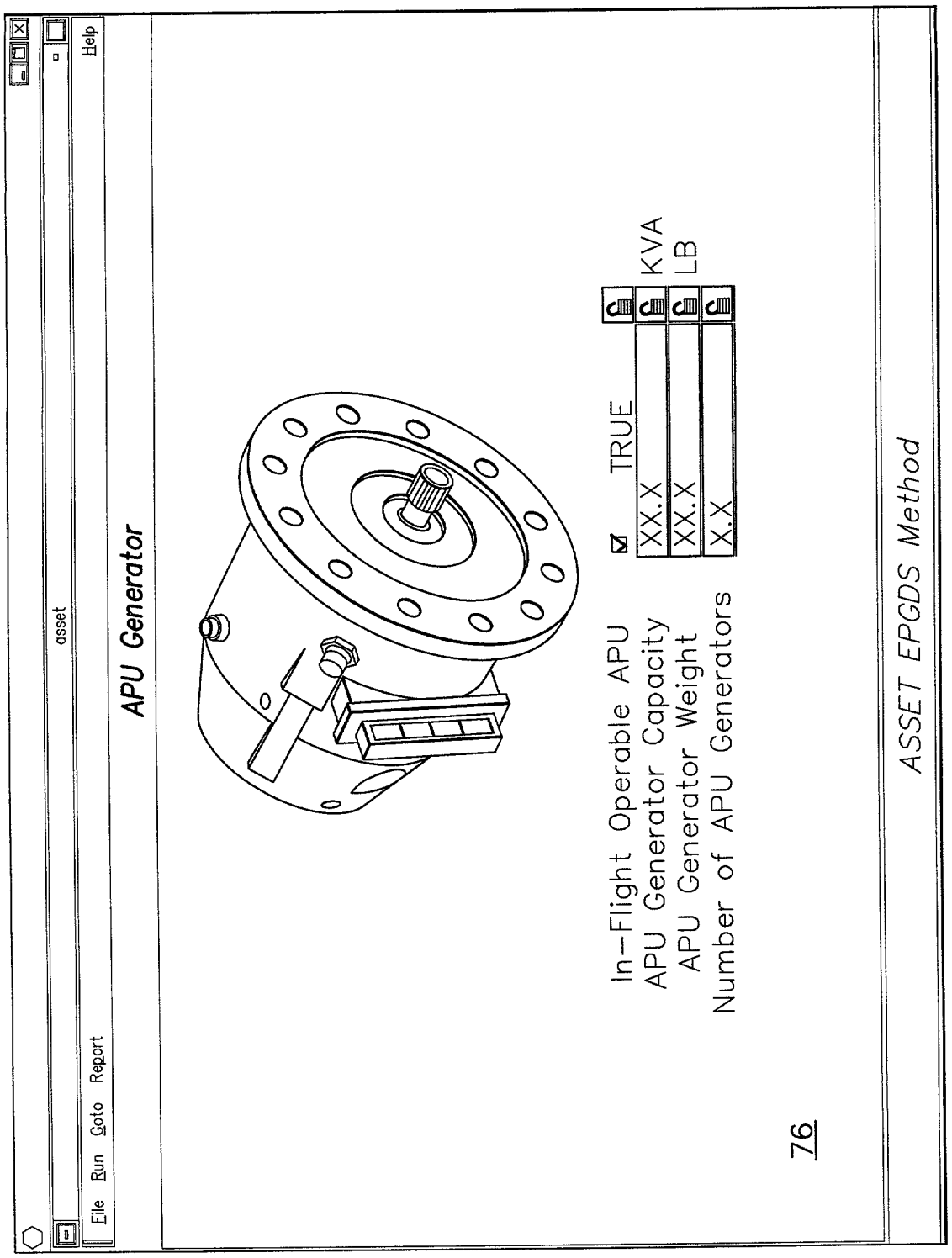
asset
File Run Goto Report Help
APU Generator
In-Flight Operable APU
APU Generator Capacity
APU Generator Weight
Number of APU Generators
TRUE
XX.X
XX.X
X.X
KVA
LB
76
ASSET EPGDS Method

FIG. 22

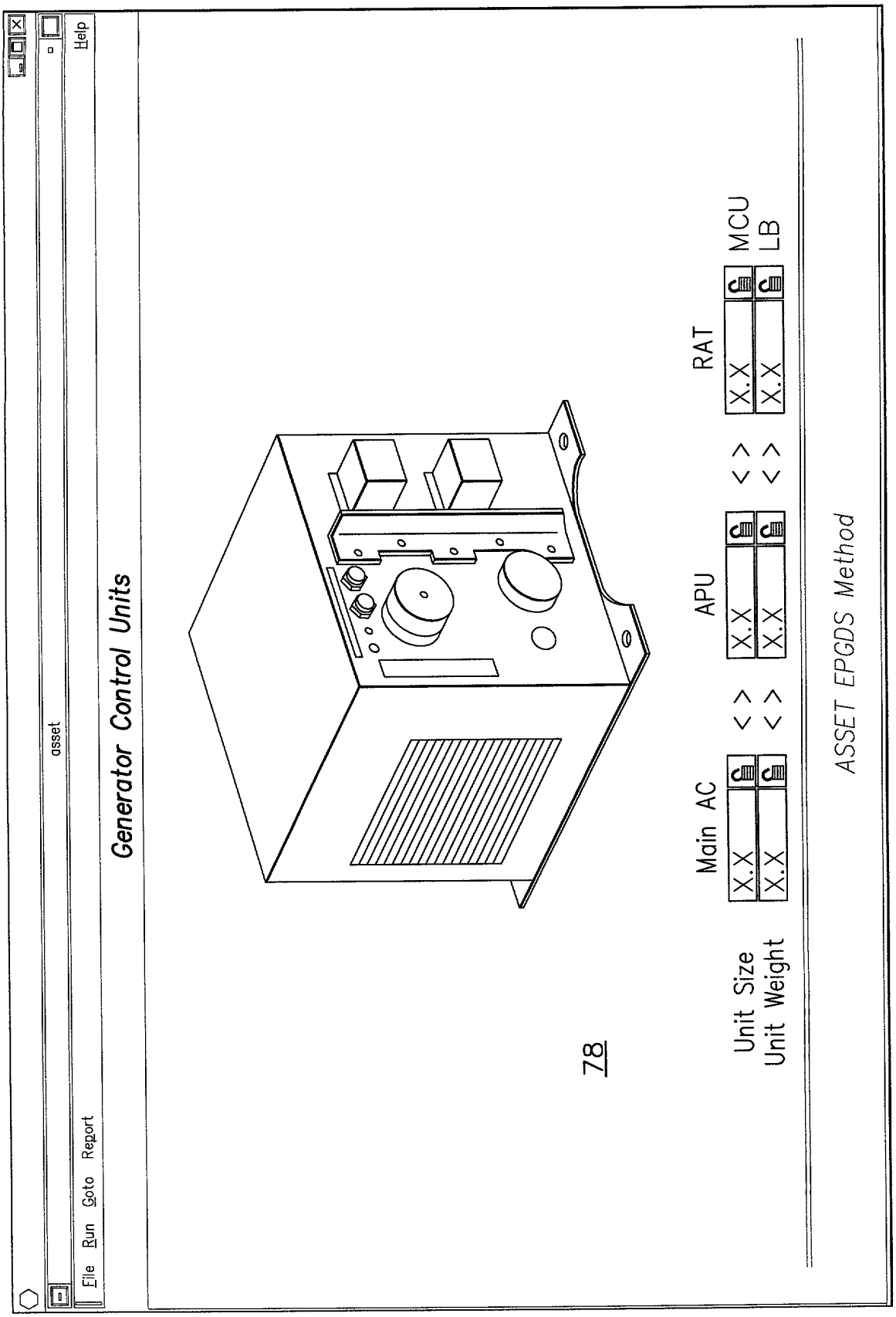
File Run Goto Report
Help
asset
Generator Control Units
78
Unit Size
Unit Weight
Main AC
APU
RAT
MCU
LB
X.X
X.X
ASSET EPGDS Method

FIG. 23

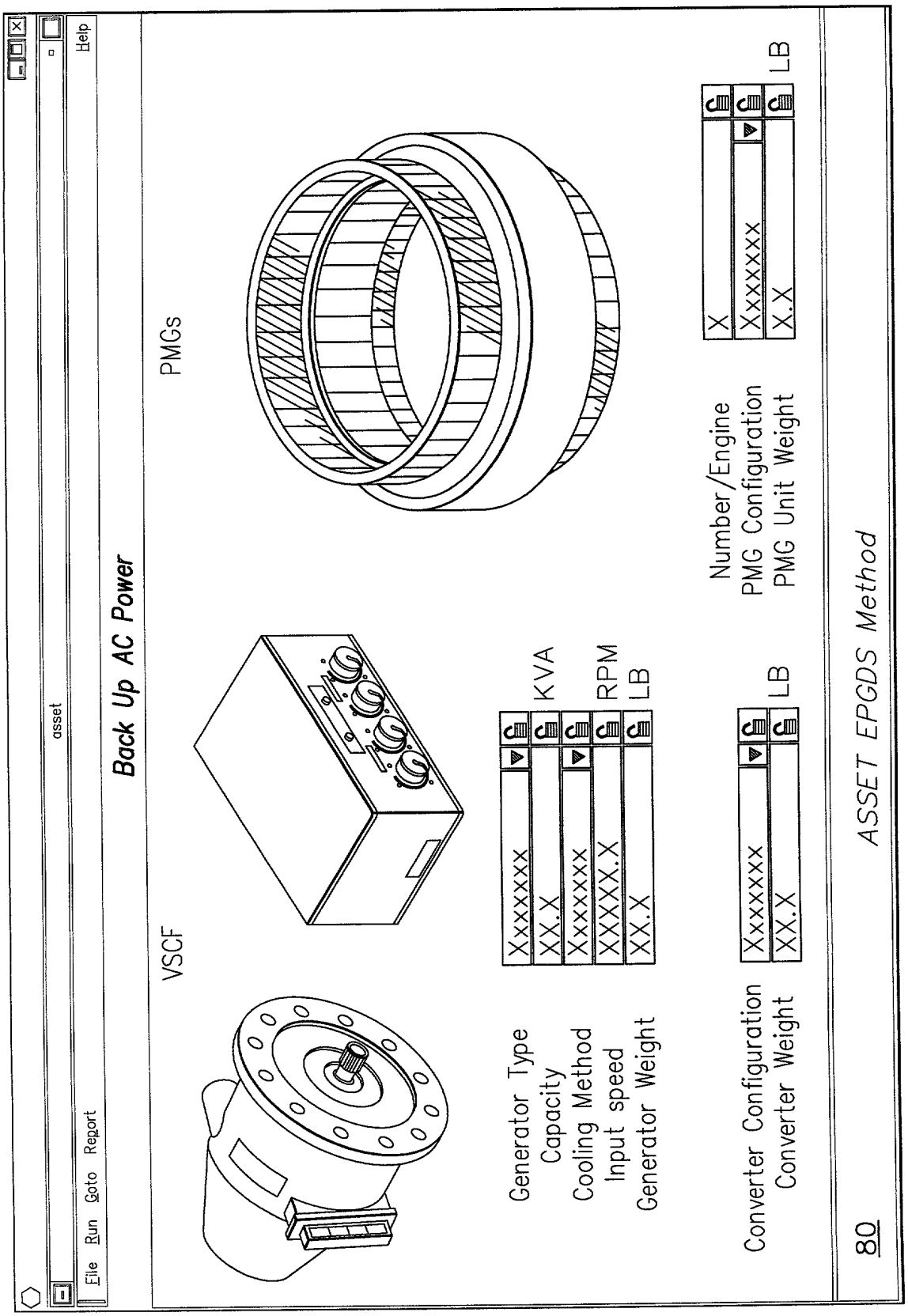
File Run Goto Report
Help
asset
Back Up AC Power
VSCF
PMGs
Generator Type
Capacity
Cooling Method
Input speed
Generator Weight
Converter Configuration
Converter Weight
Number/Engine
PMG Configuration
PMG Unit Weight
KVA
RPM
LB
LB
LB
Xxxxxx
XX.X
Xxxxxx
XXXX.X
XX.X
Xxxxxxx
XX.X
X
Xxxxxx
X.X
80
ASSET EPGDS Method

FIG. 24

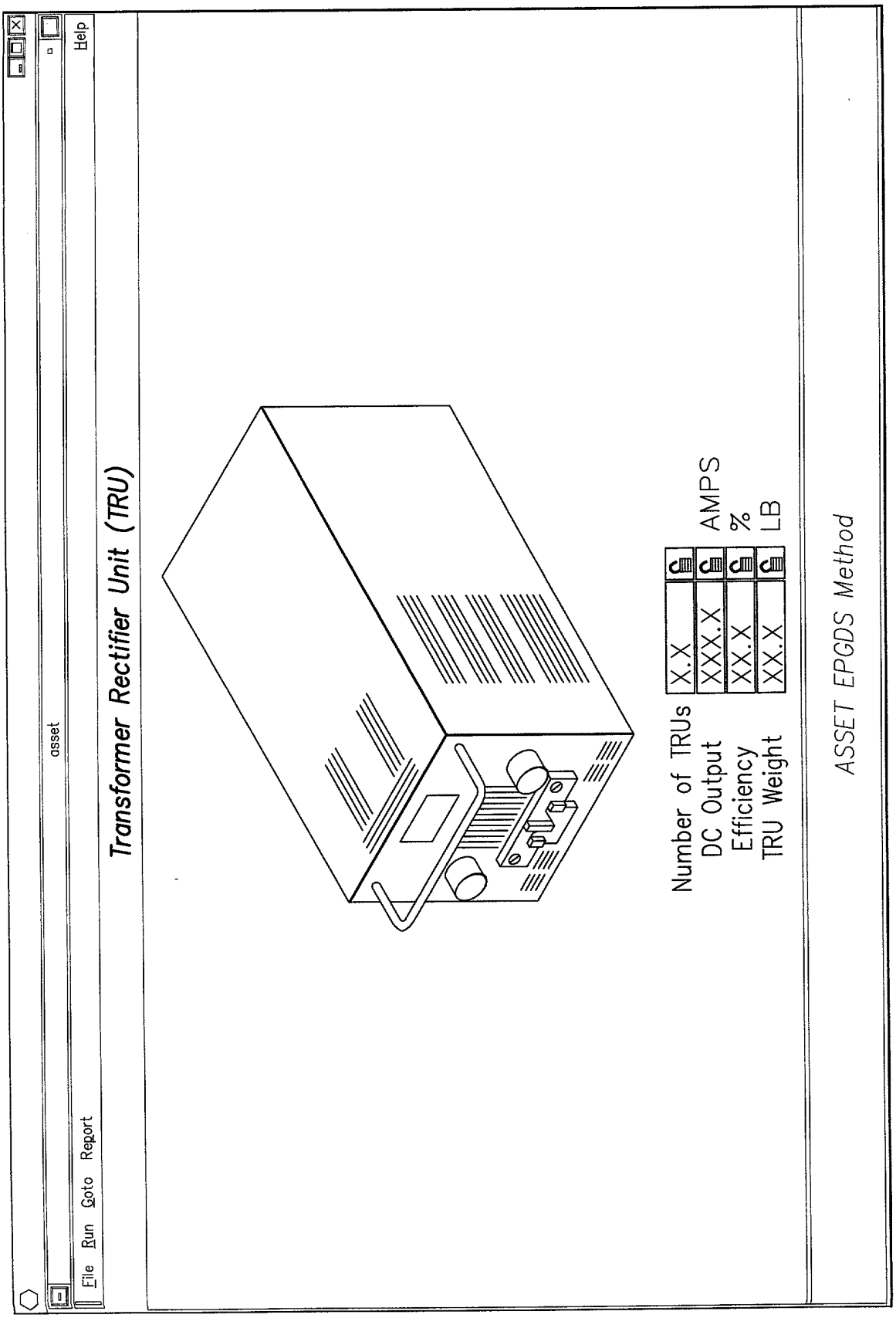
File Run Goto Report
Help
asset
Transformer Rectifier Unit (TRU)
Number of TRUs
DC Output
Efficiency
TRU Weight
X.X
XXX.X
XX.X
XX.X
AMPS
%
LB
ASSET EPGDS Method

FIG. 25

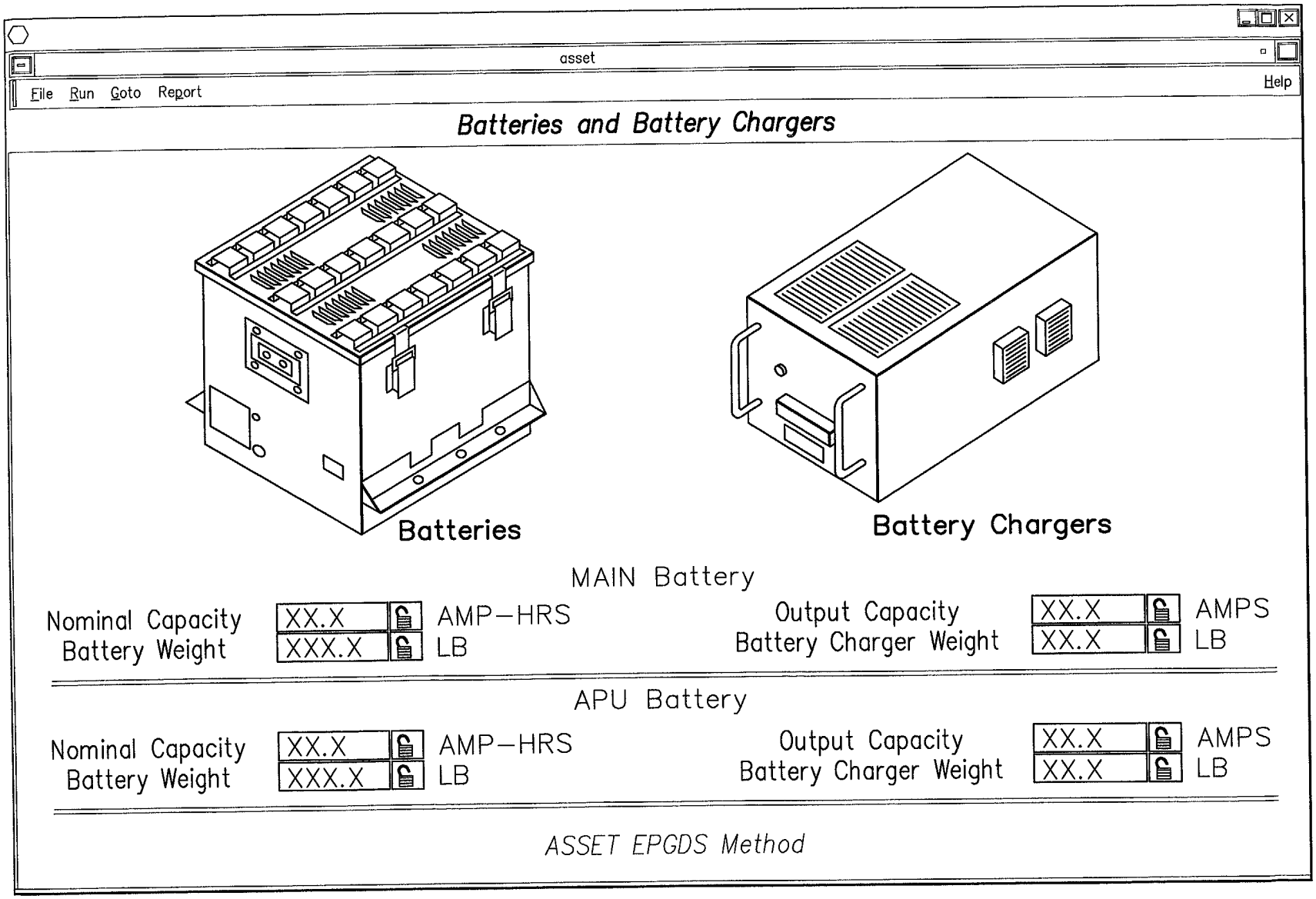

FIG. 26

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

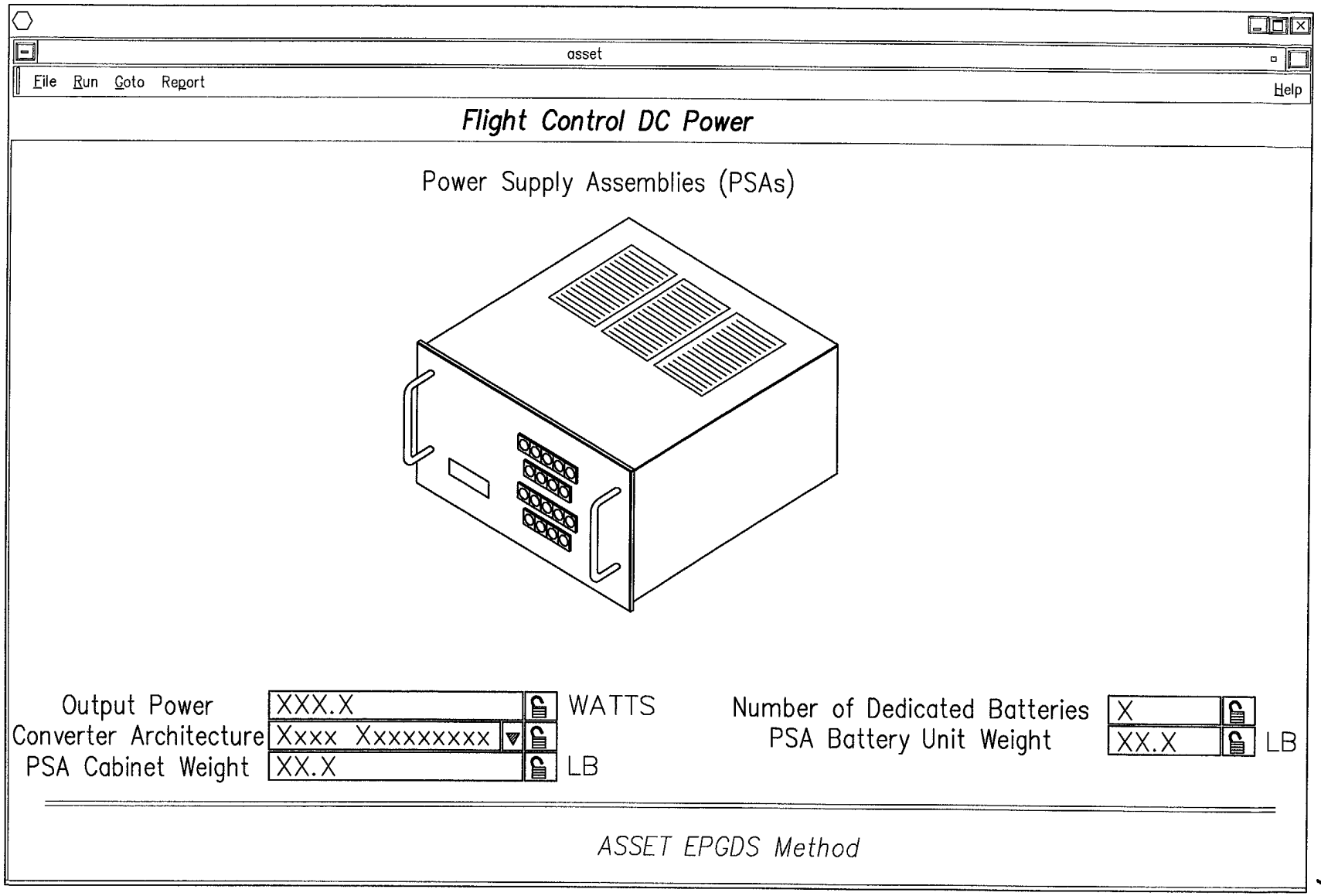

FIG. 27

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

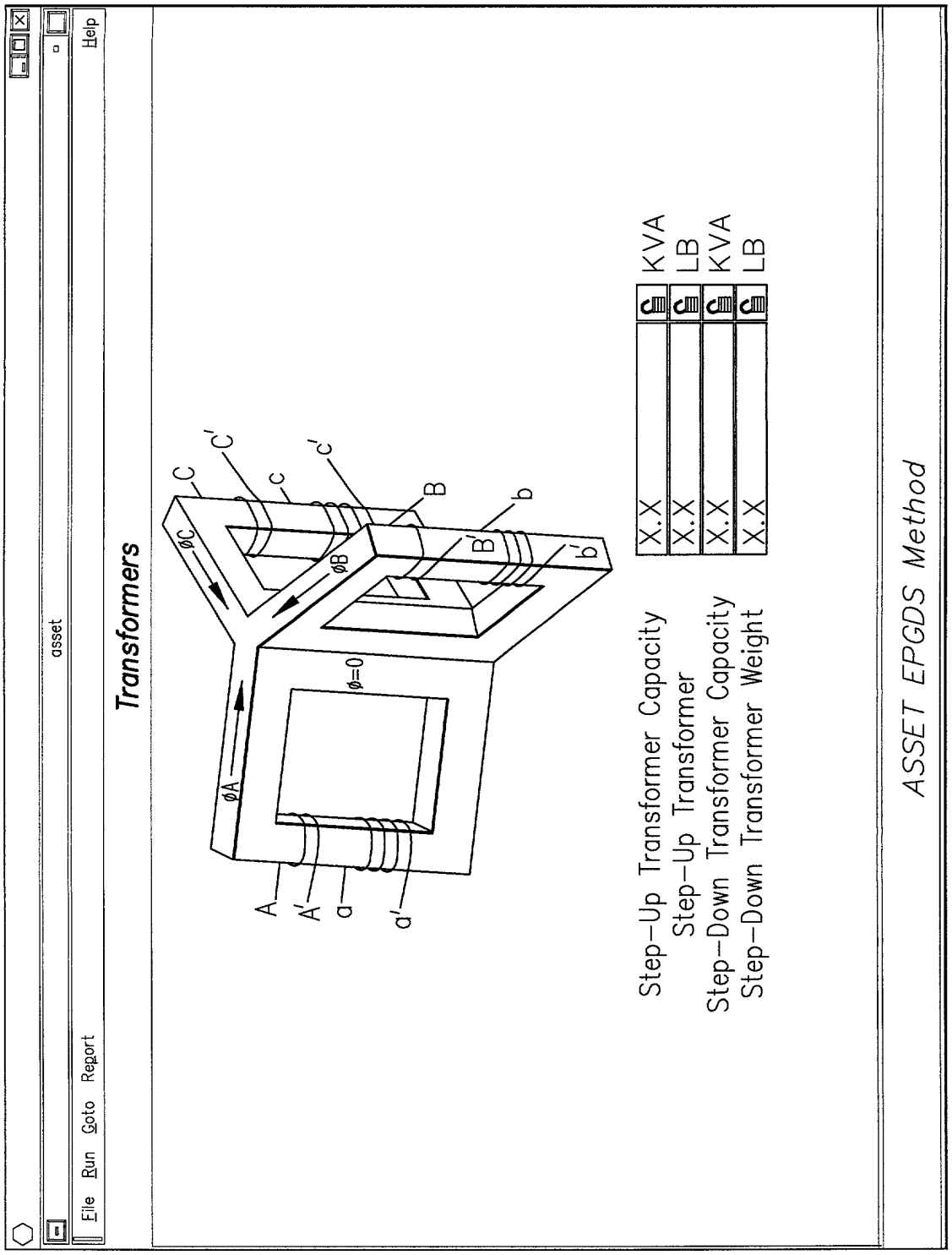
File Run Goto Report Help
asset
Transformers
C
C'
c
c'
B
b
B'
b'
øC
øB
øA
ø=0
A
A'
a
a'
Step-Up Transformer Capacity
Step-Up Transformer
Step-Down Transformer Capacity
Step-Down Transformer Weight
X.X
KVA
LB
KVA
LB
ASSET EPGDS Method

FIG. 28

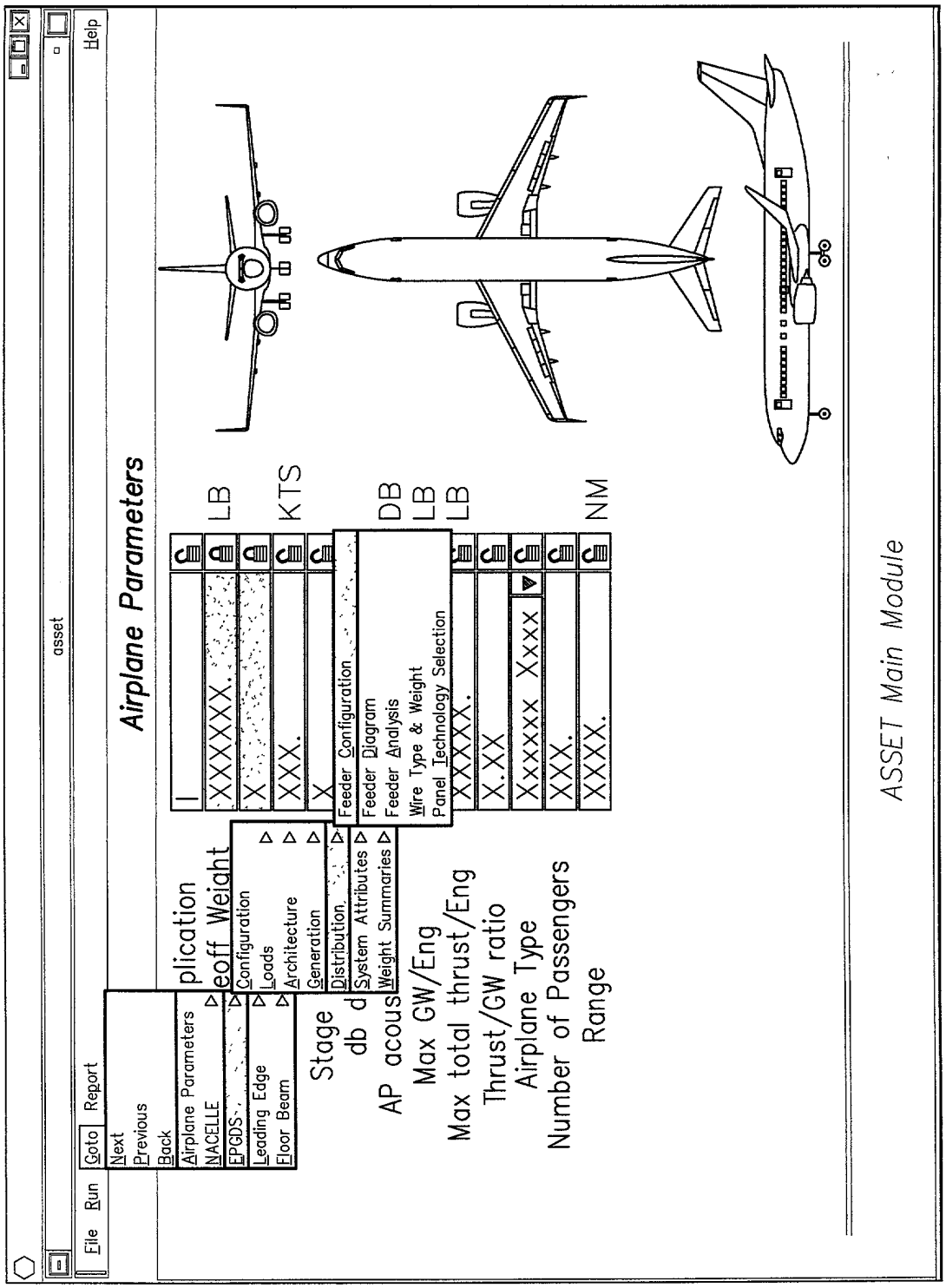
File Run Goto Report Help
asset
Next
Previous
Back
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
plication
eoff Weight
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
Feeder Configuration
Feeder Diagram
Feeder Analysis
Wire Type & Weight
Panel Technology Selection
Airplane Parameters
Stage
db d
AP acous
Max GW/Eng
Max total thrust/Eng
Thrust/GW ratio
Airplane Type
Number of Passengers
Range
I
XXXXXX.
X
XXX.
X
XXXXX.
X.XX
Xxxxx Xxxx
XXX.
XXXX.
LB
KTS
DB
LB
LB
NM
ASSET Main Module

FIG. 29

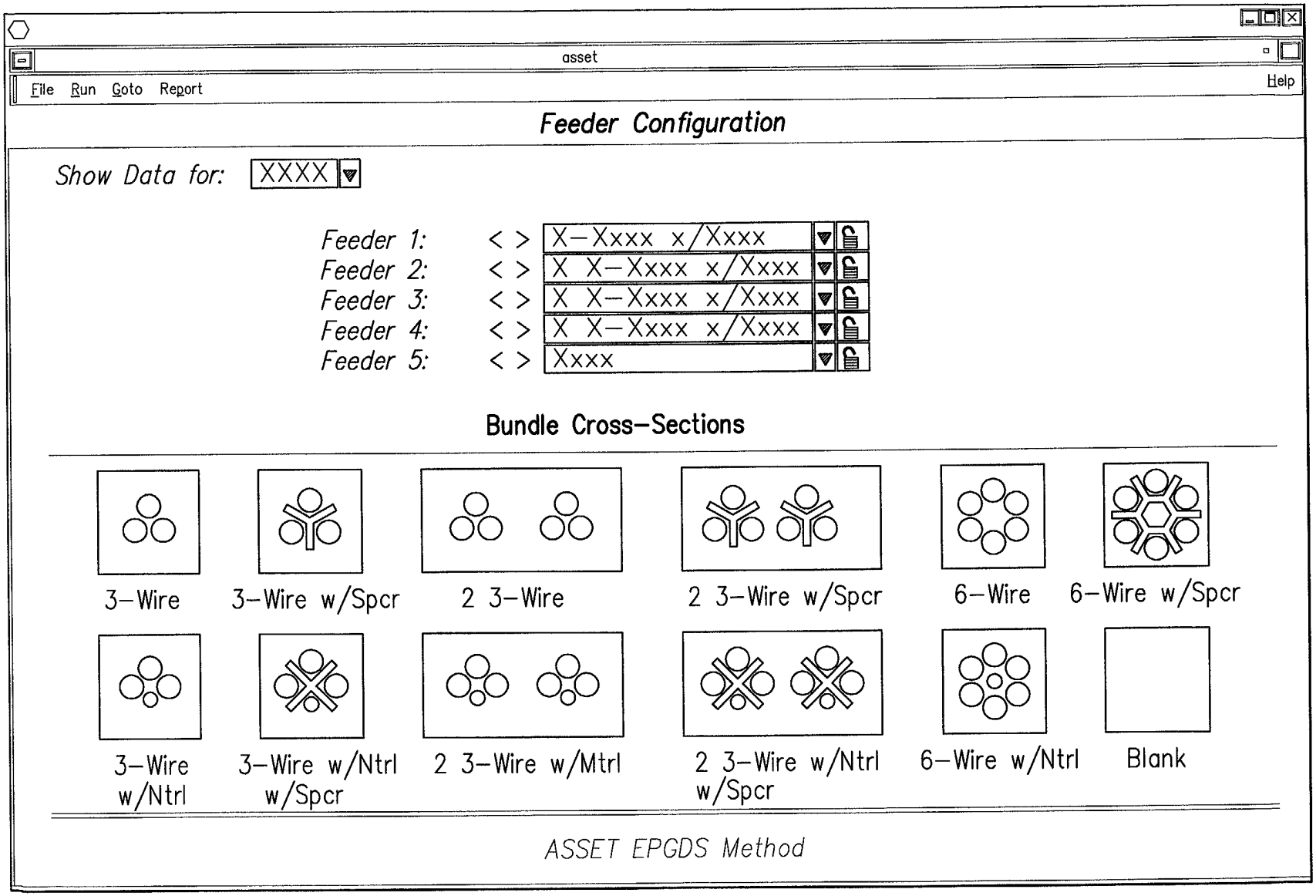

FIG. 30

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

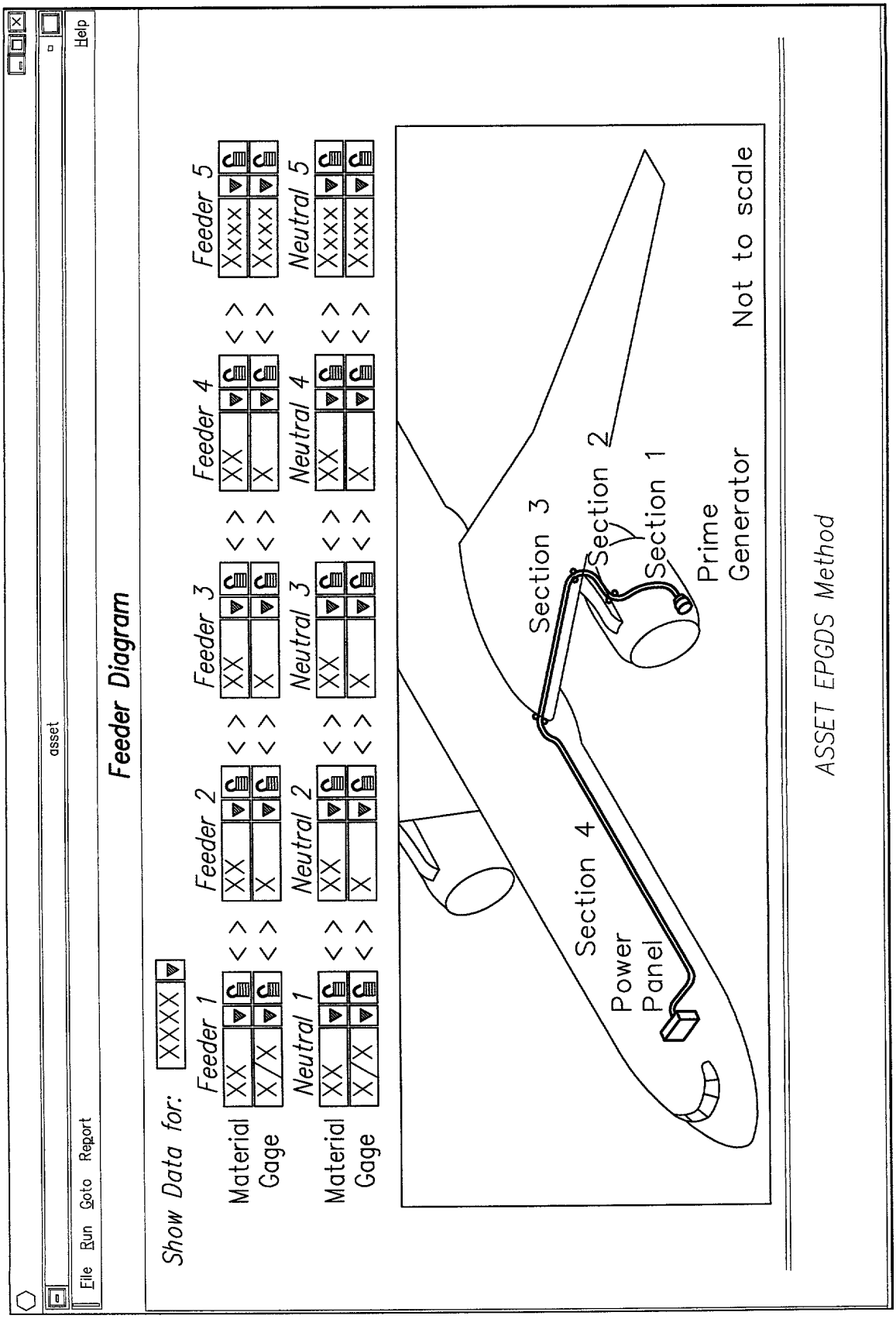

FIG. 31

20010129.2250.0020

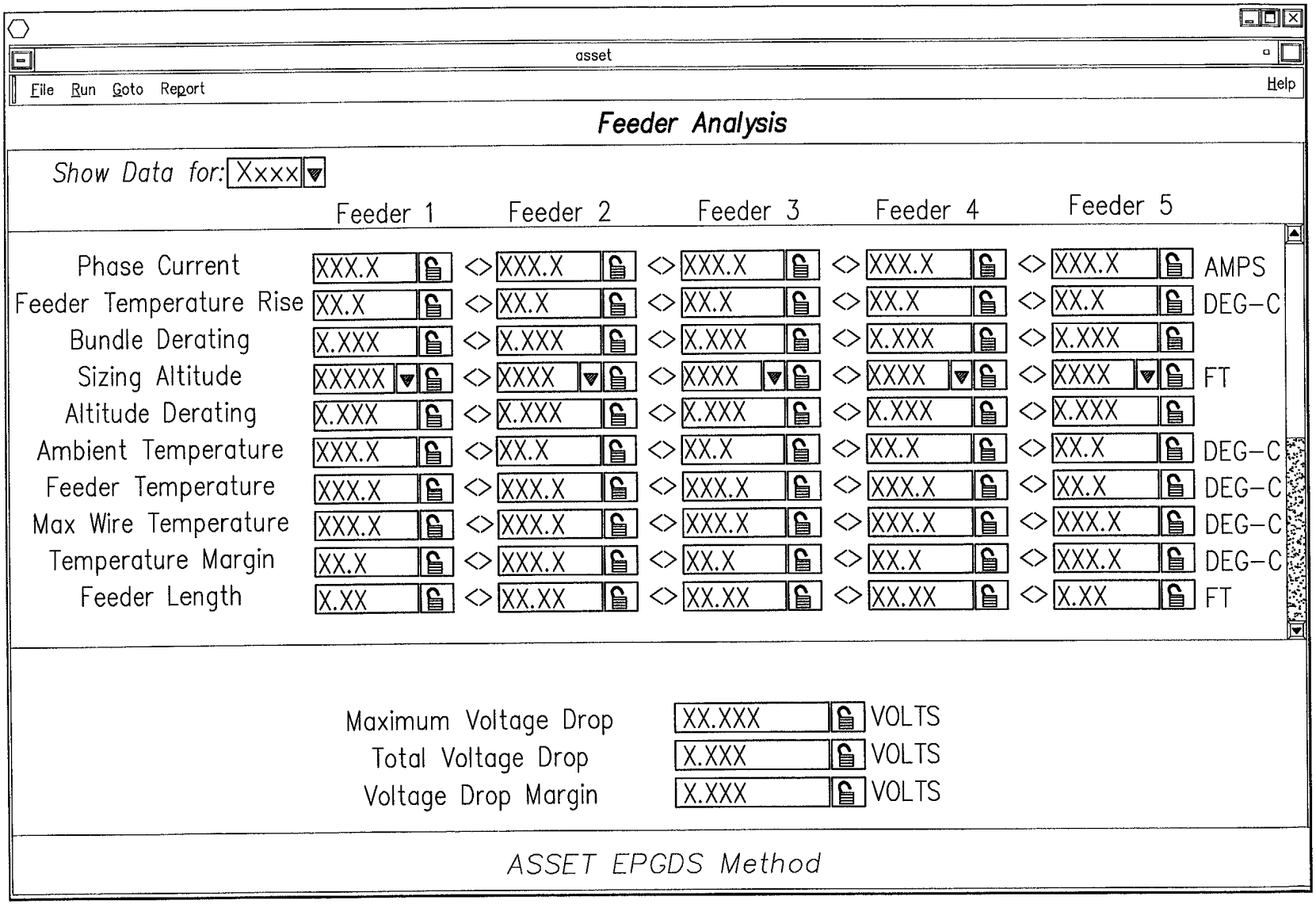

FIG. 32

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

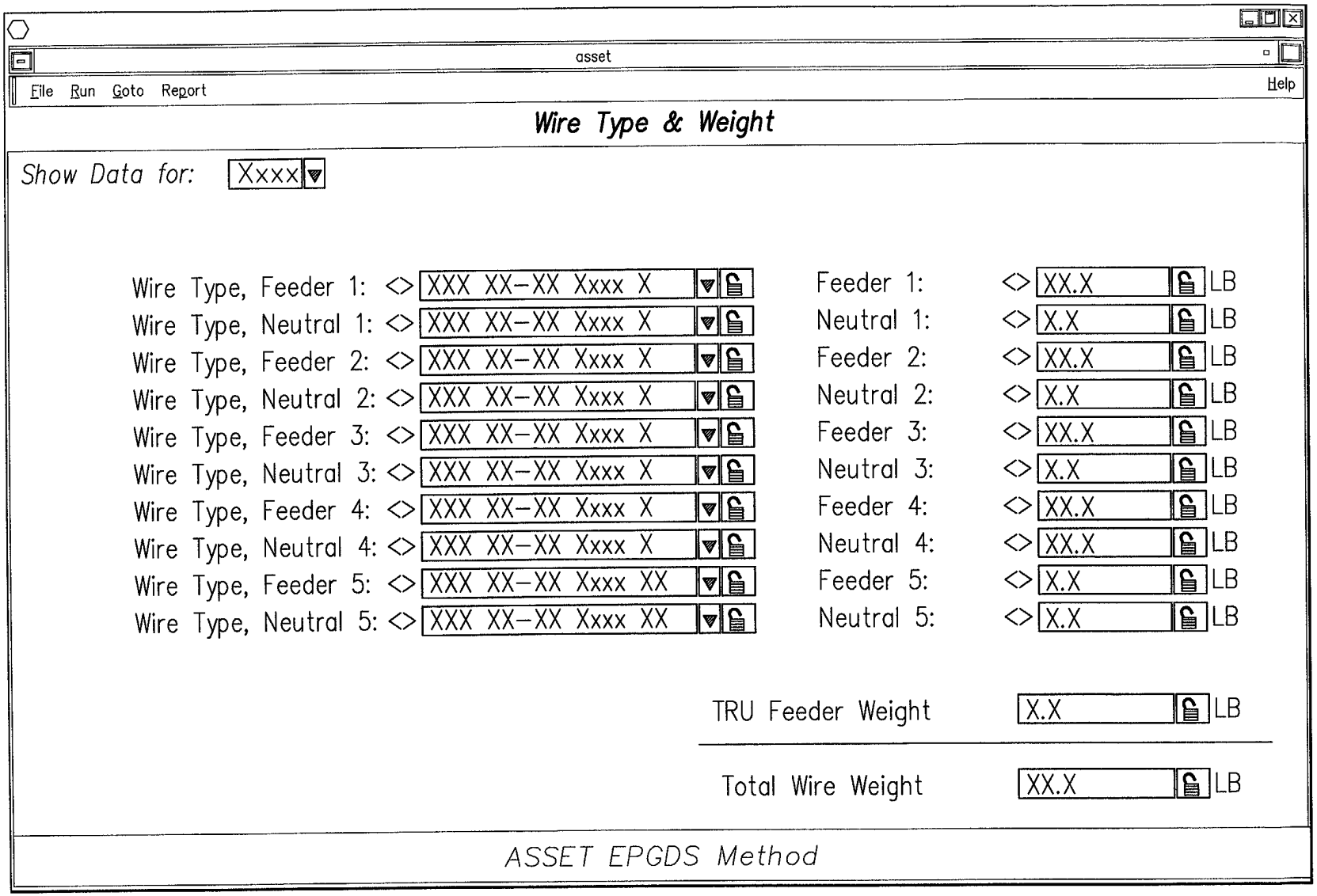

FIG. 33

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

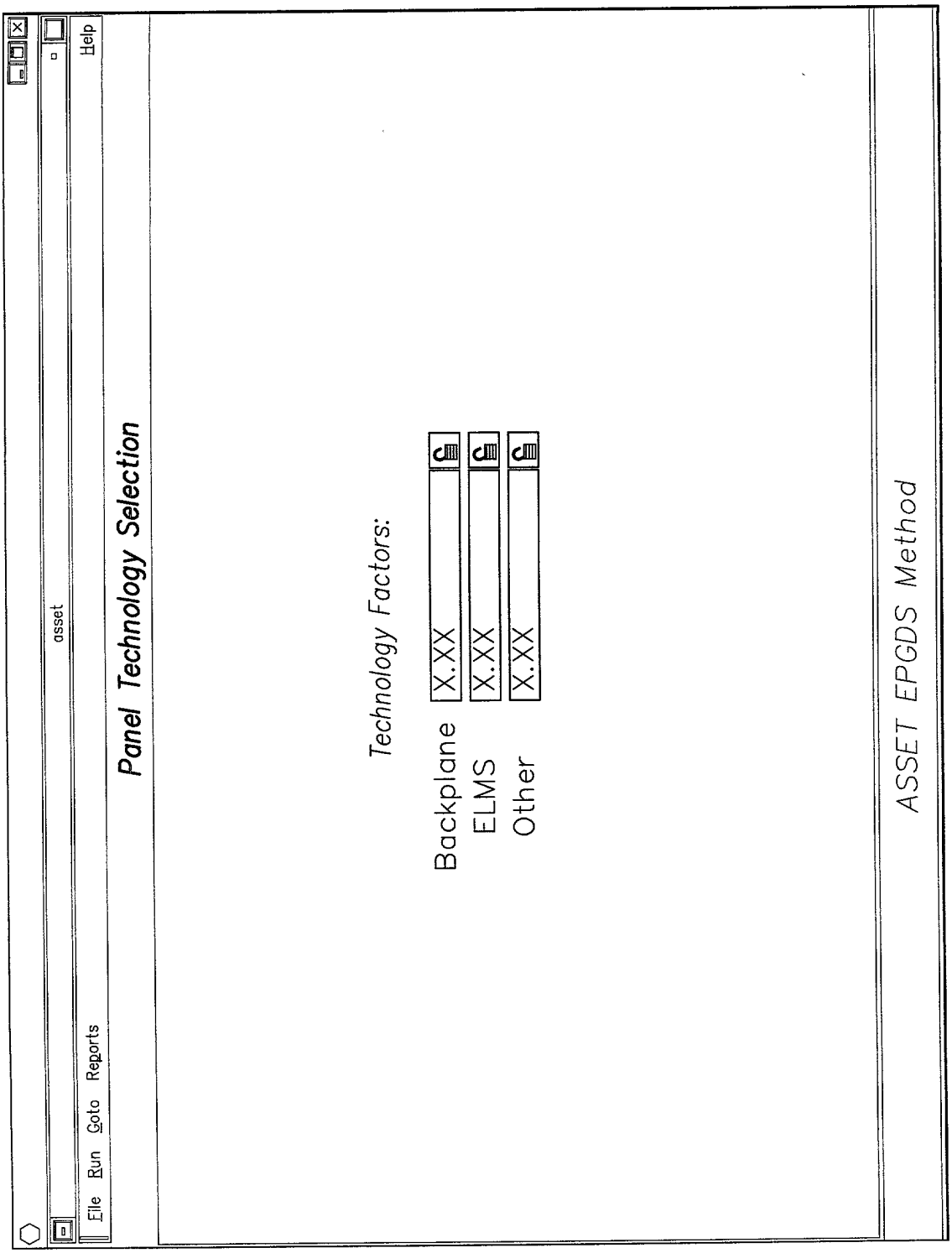

FIG. 34

PCT/US01/21090

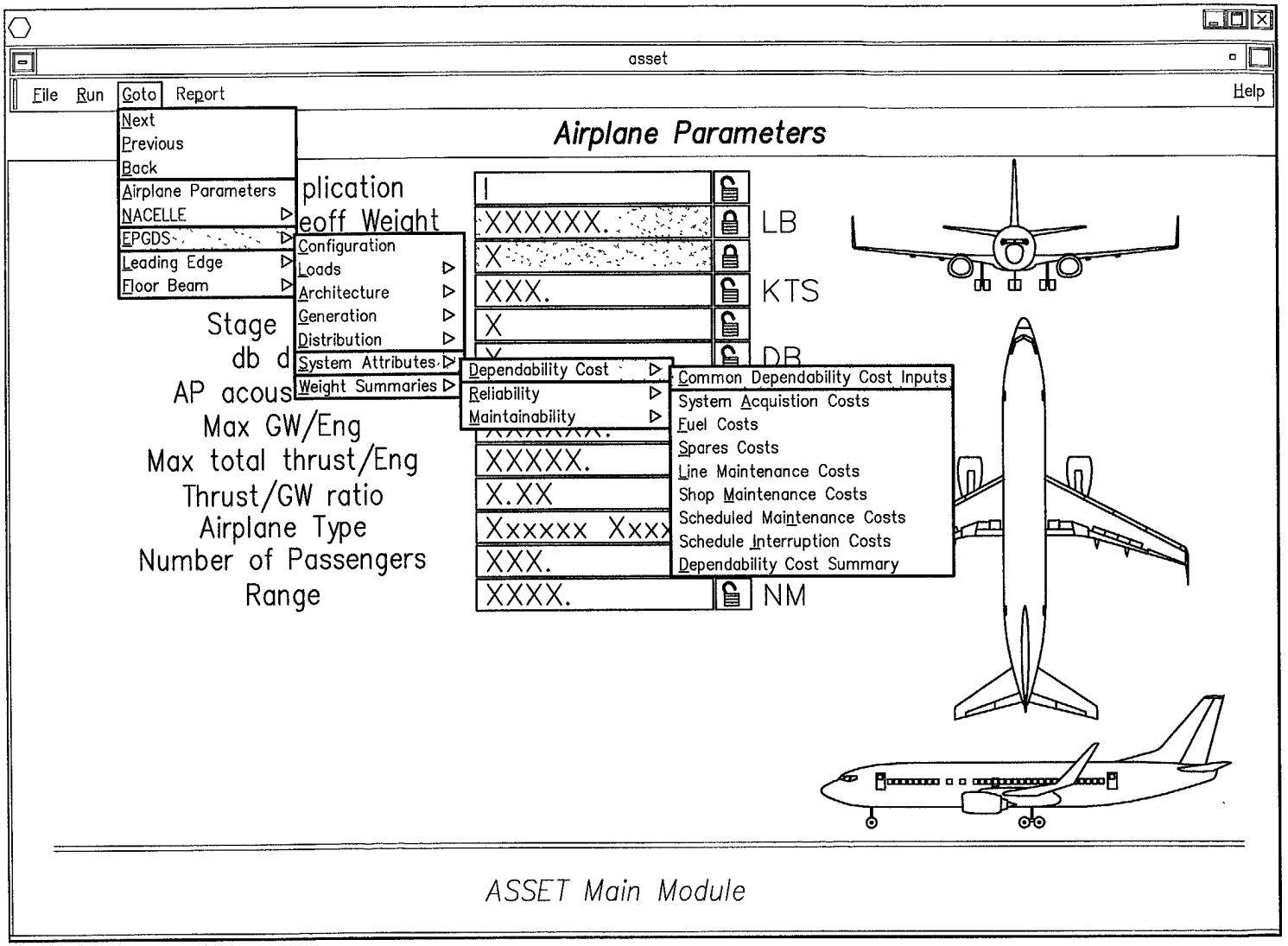

FIG. 35

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

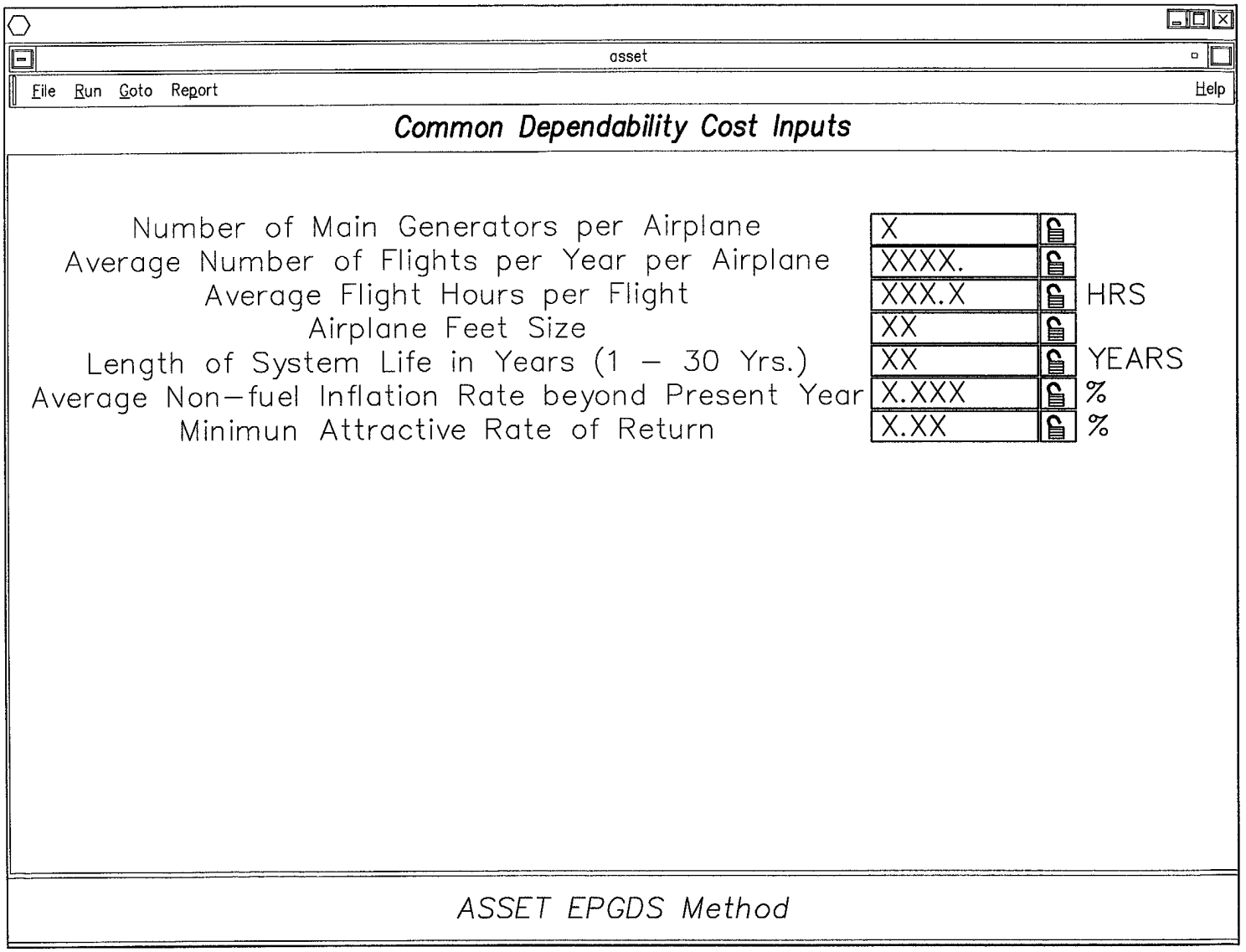

FIG. 36

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641–1229

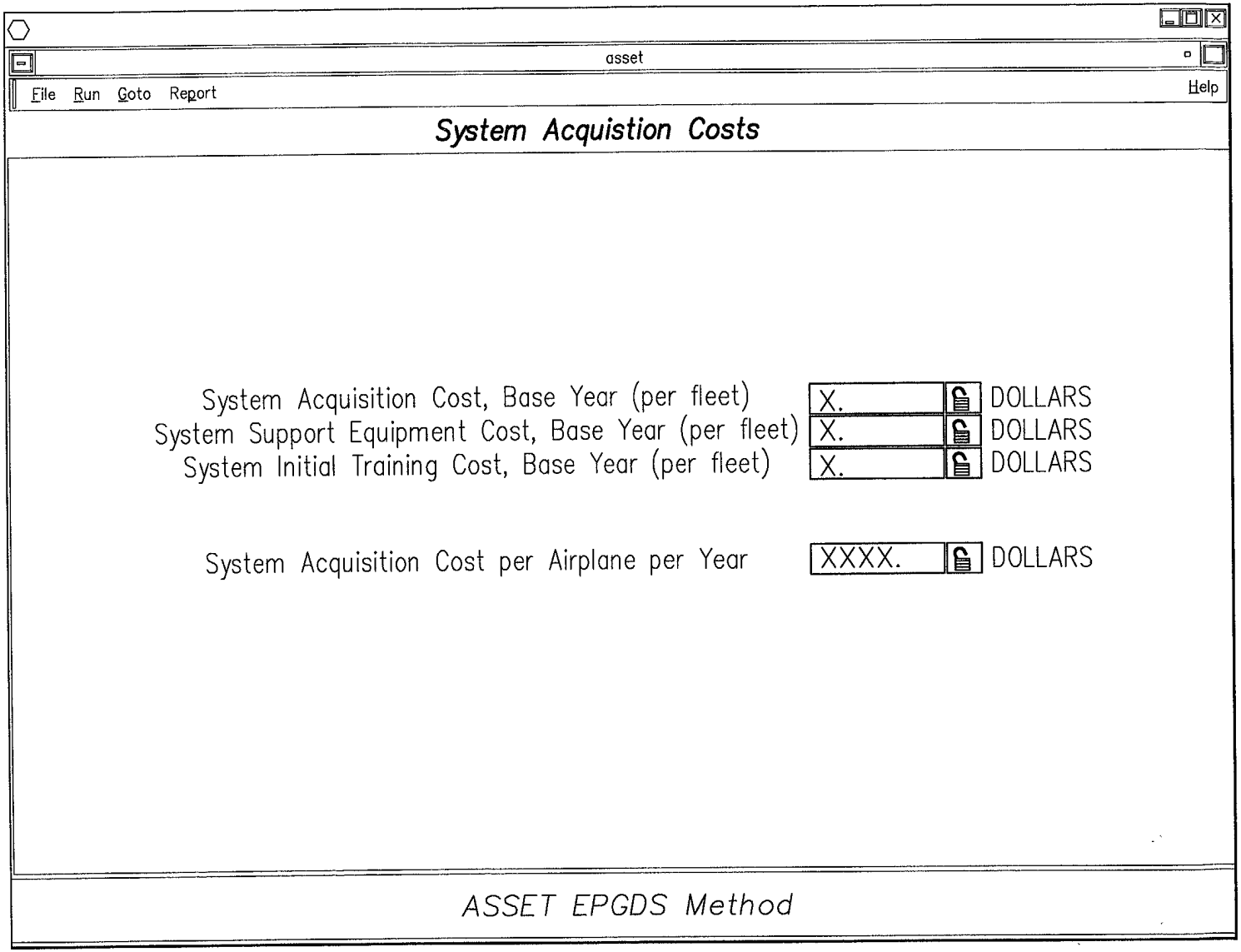

FIG. 37

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

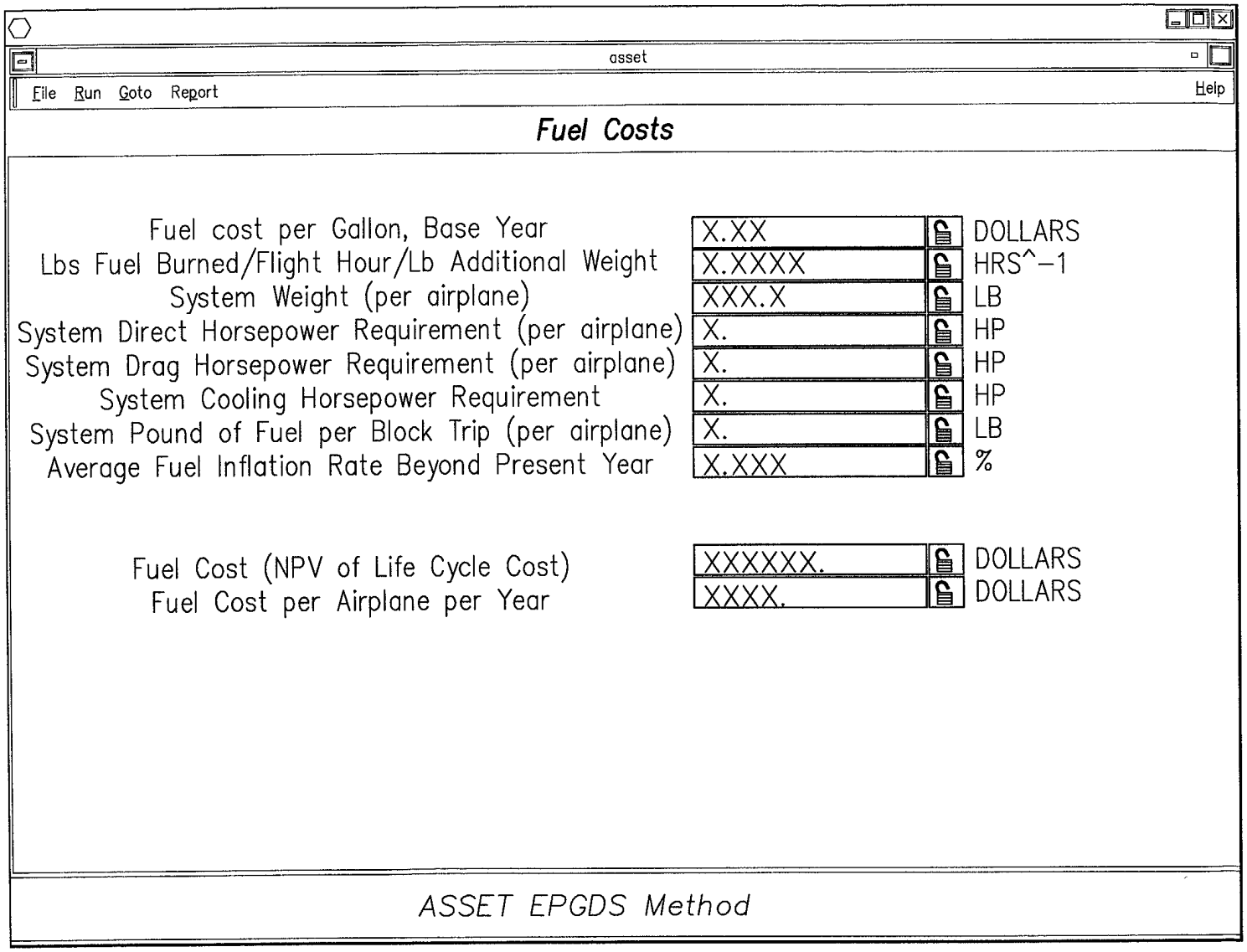

FIG. 38

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

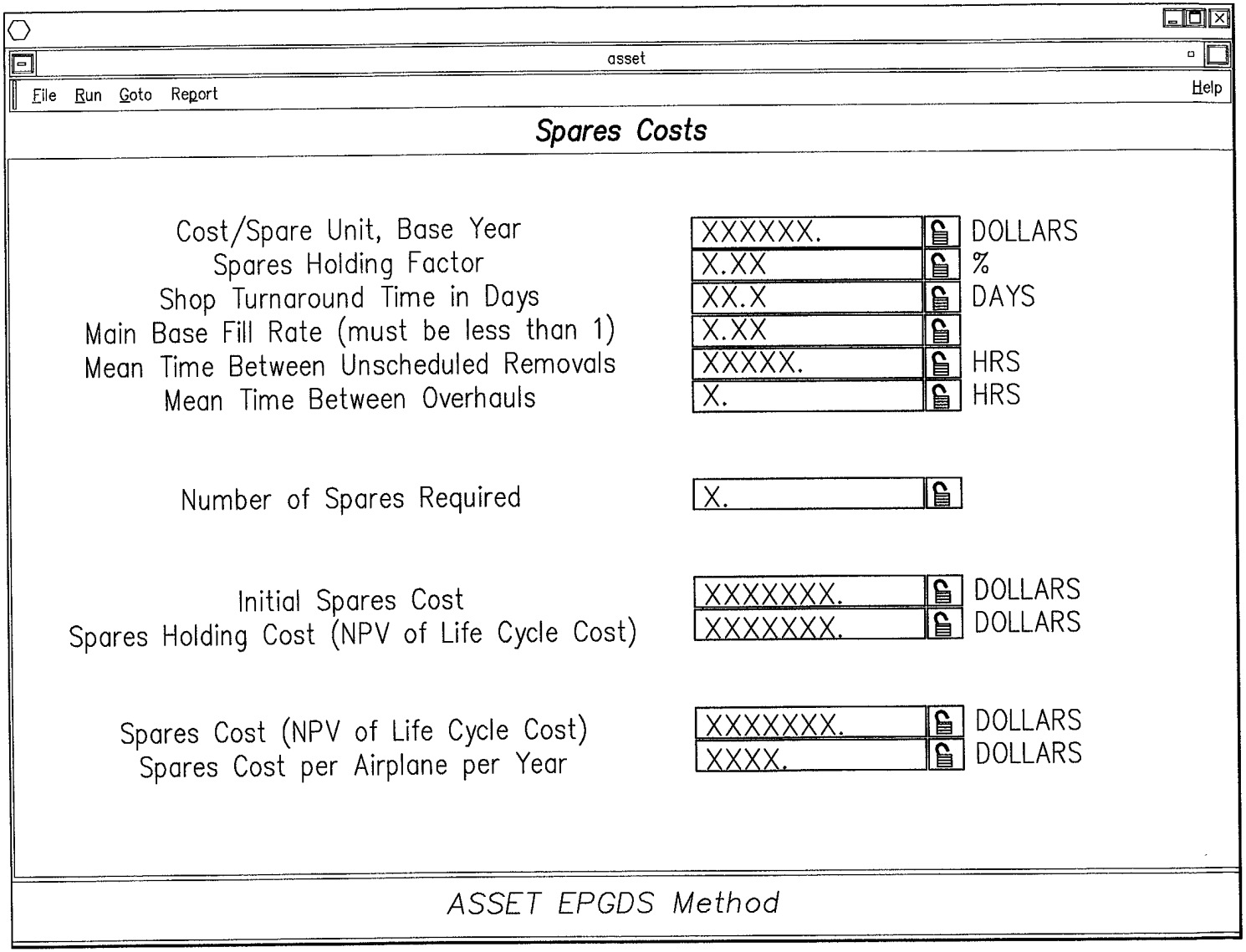

FIG. 39

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

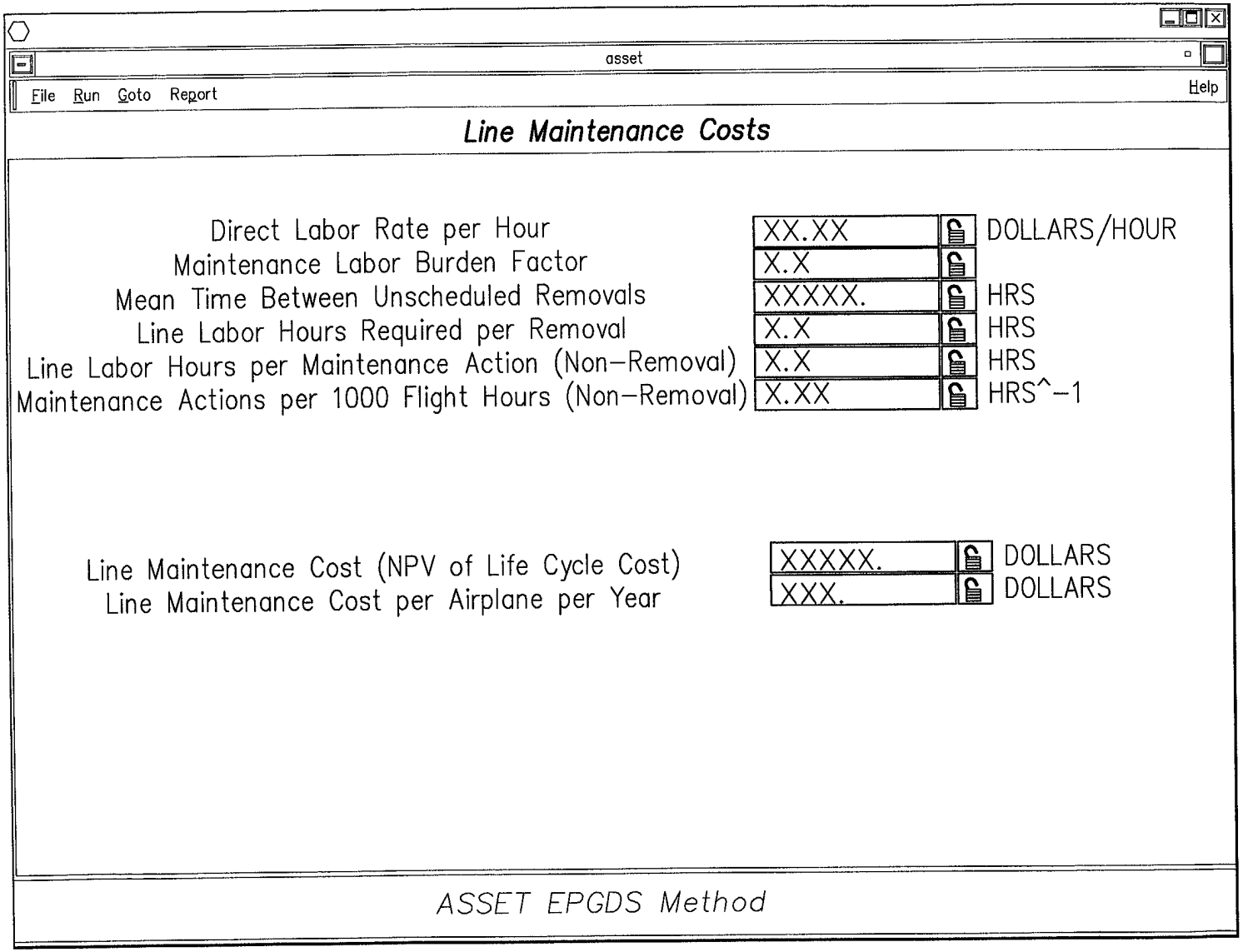

FIG. 40

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

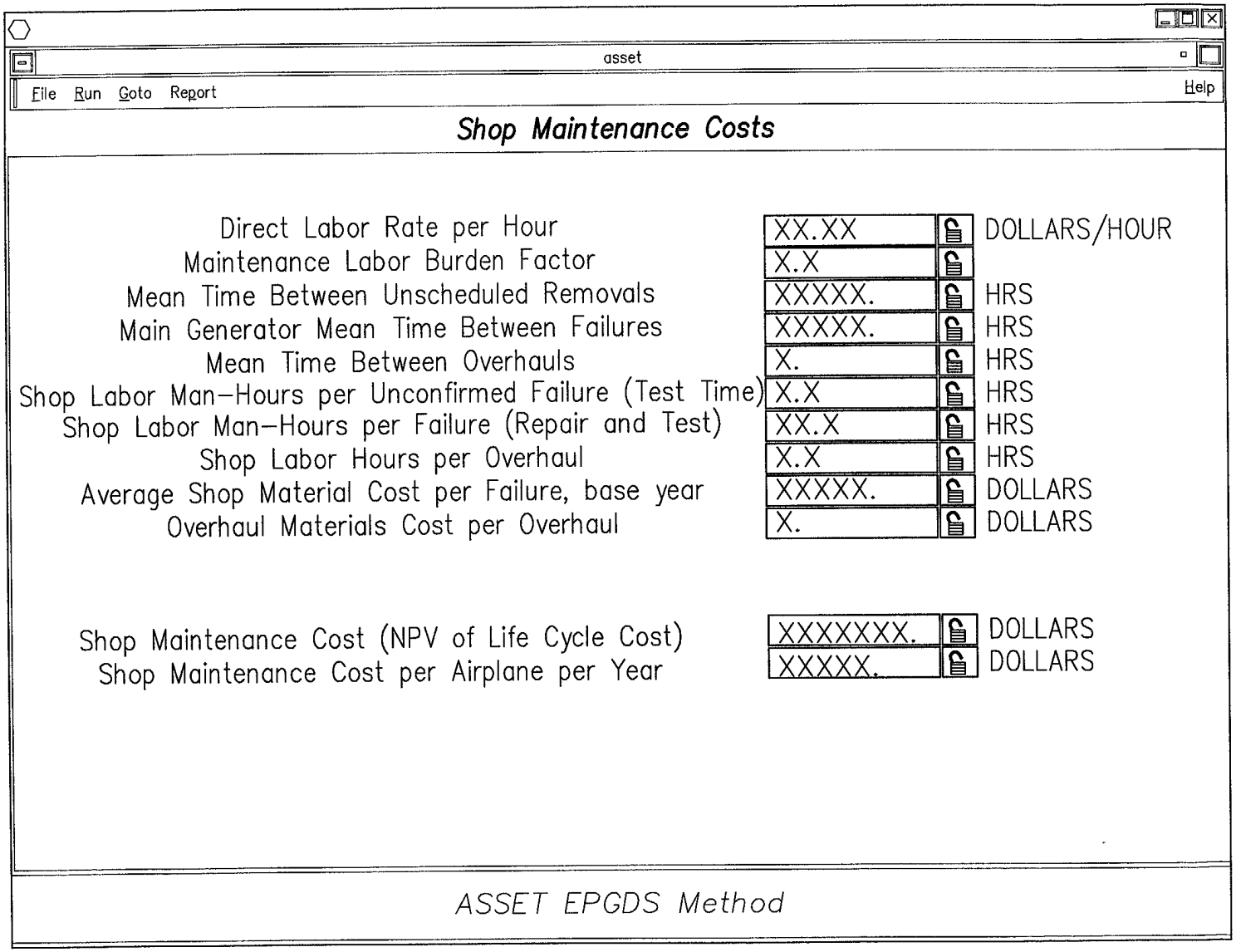

FIG. 41

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

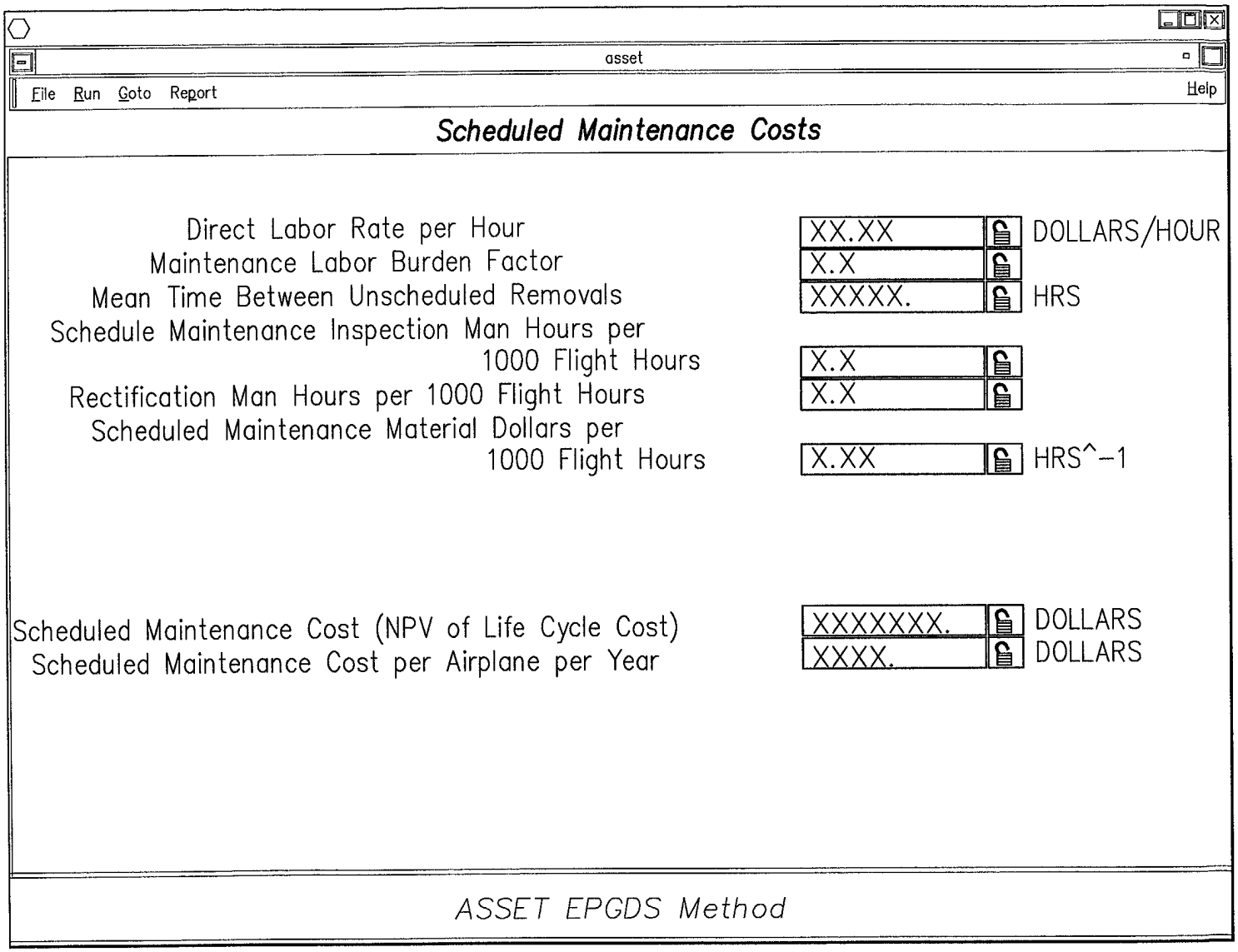

FIG. 42

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

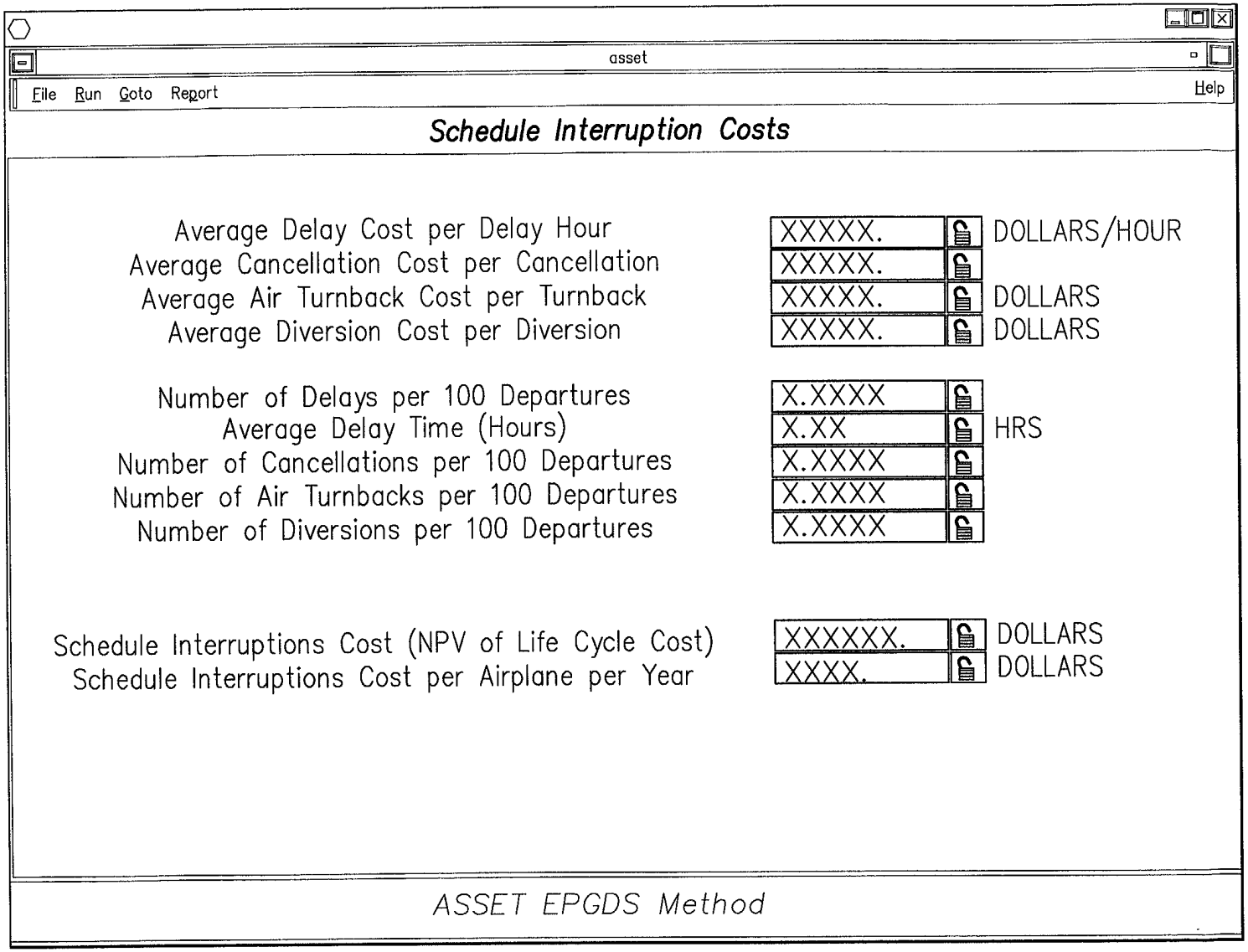

FIG. 43

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

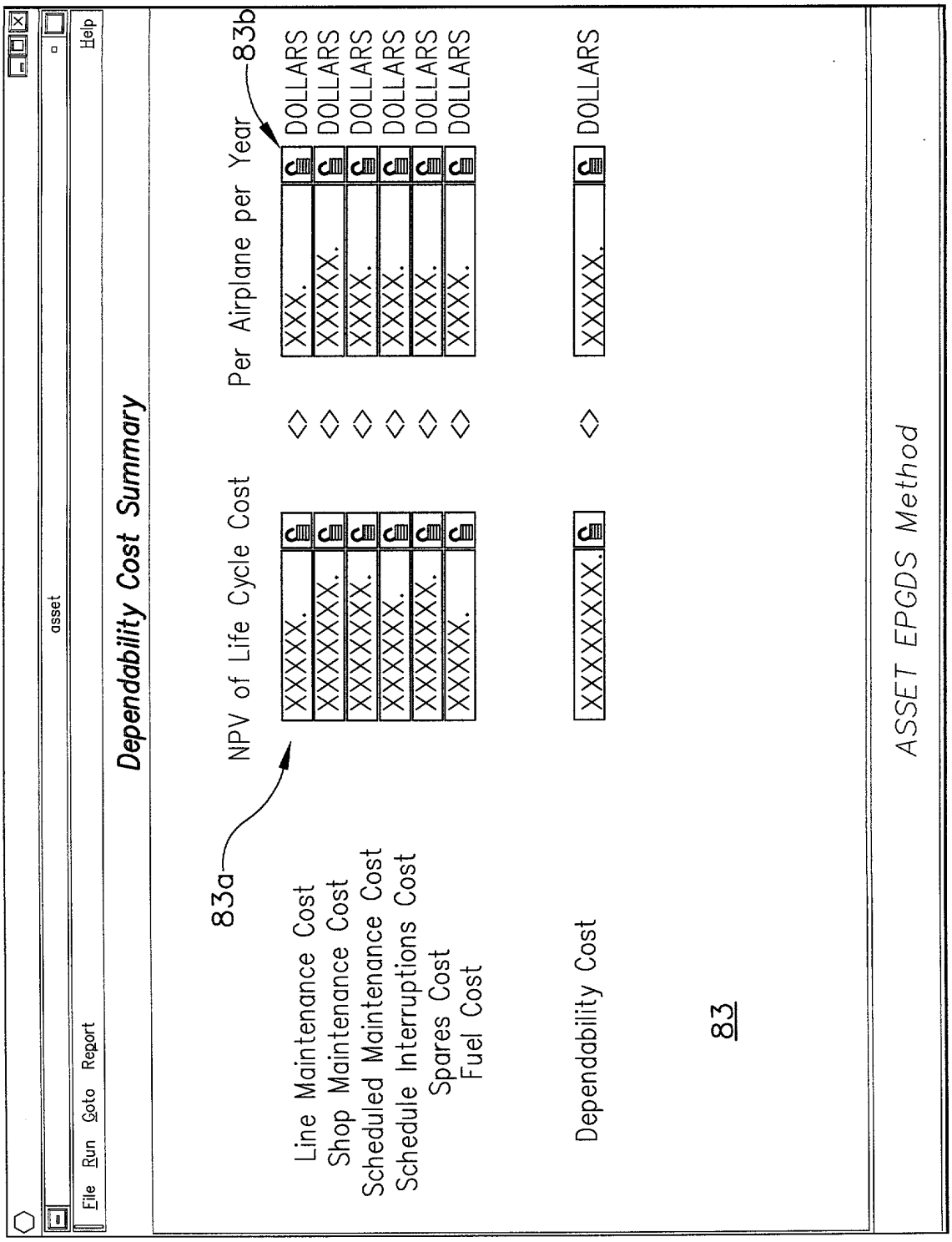
asset
File Run Goto Report Help
Dependability Cost Summary
NPV of Life Cycle Cost
Per Airplane per Year
83b
83a
Line Maintenance Cost
Shop Maintenance Cost
Scheduled Maintenance Cost
Schedule Interruptions Cost
Spares Cost
Fuel Cost
XXXXX.
XXXXXXX.
XXXXXXX.
XXXXX.
XXXXXX.
XXXXX.
XXX.
XXXXX.
XXXX.
XXXX.
XXXX.
XXXX.
DOLLARS
Dependability Cost
XXXXXXX.
XXXXX.
DOLLARS
83
ASSET EPGDS Method

FIG. 44

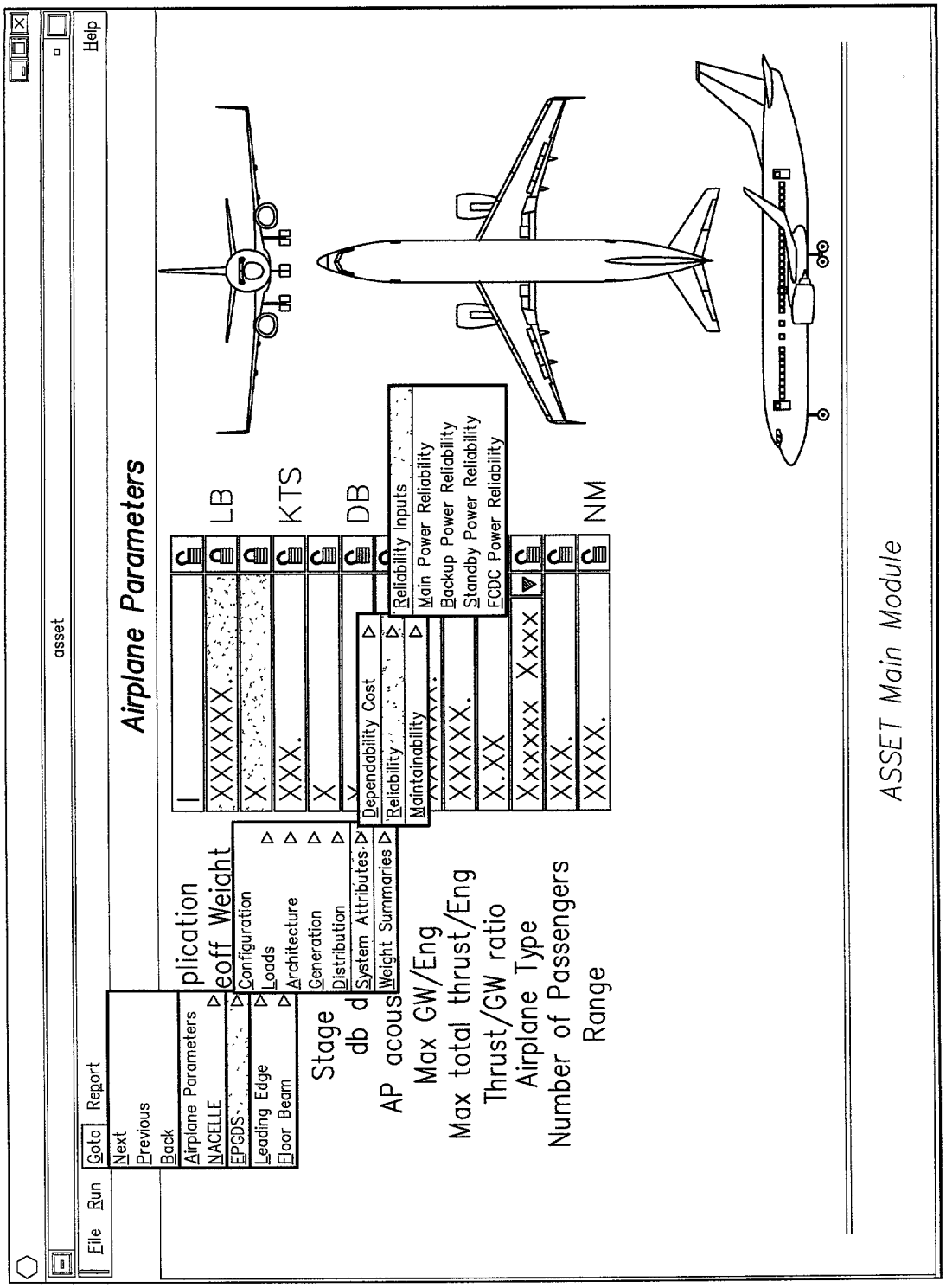
File Run
asset
Help
Goto Report
Next
Previous
Back
Airplane Parameters
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
Dependability Cost
Reliability
Maintainability
Reliability Inputs
Main Power Reliability
Backup Power Reliability
Standby Power Reliability
FCDC Power Reliability
plication
eoff Weight
Stage
db d
AP acous
Max GW/Eng
Max total thrust/Eng
Thrust/GW ratio
Airplane Type
Number of Passengers
Range
LB
KTS
DB
NM
XXXXXX.
X
XXX.
X
X
XXXXX.
X.XX
Xxxxx Xxxx
XXX.
XXXX.
ASSET Main Module

FIG. 45

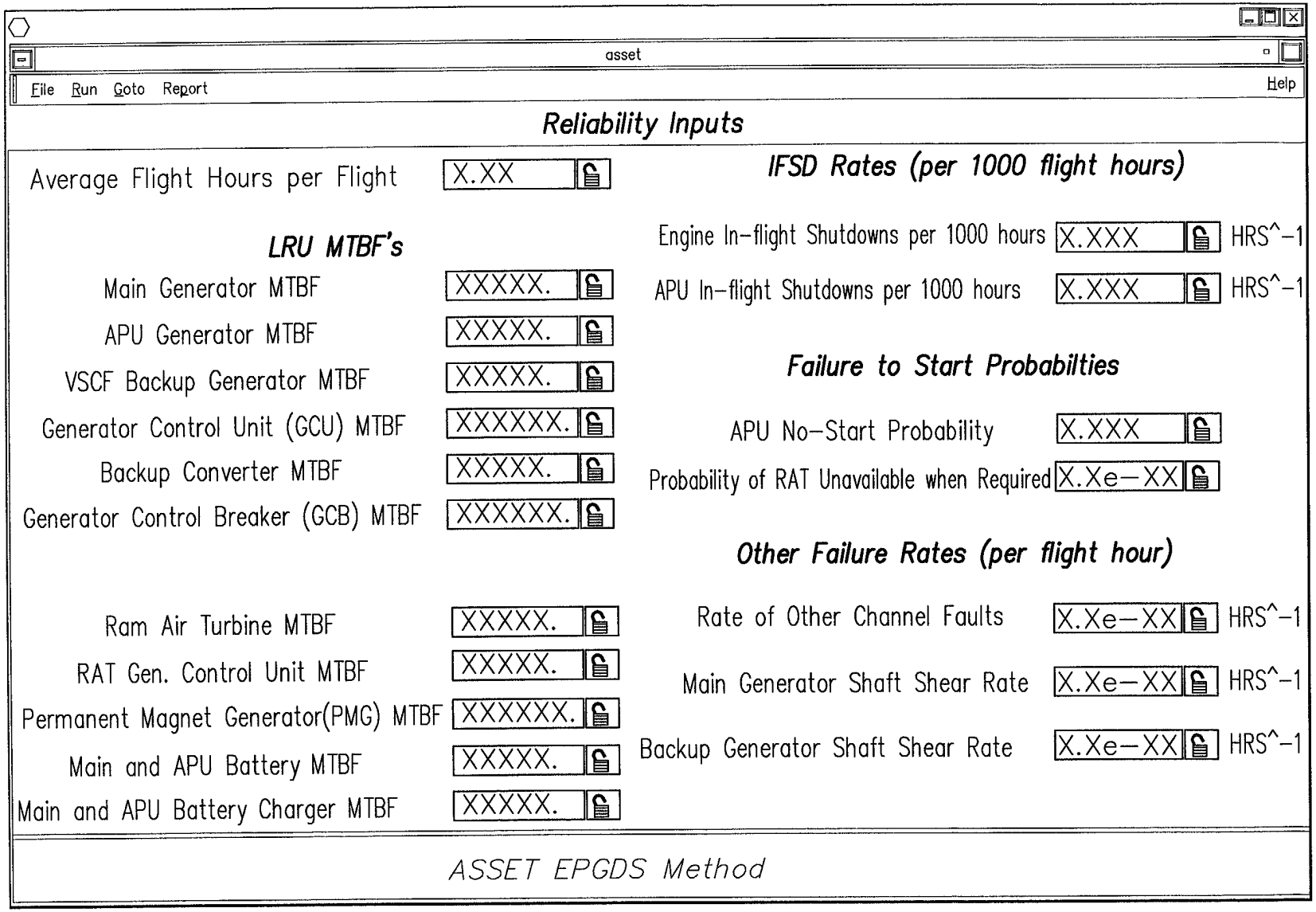

FIG. 46

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

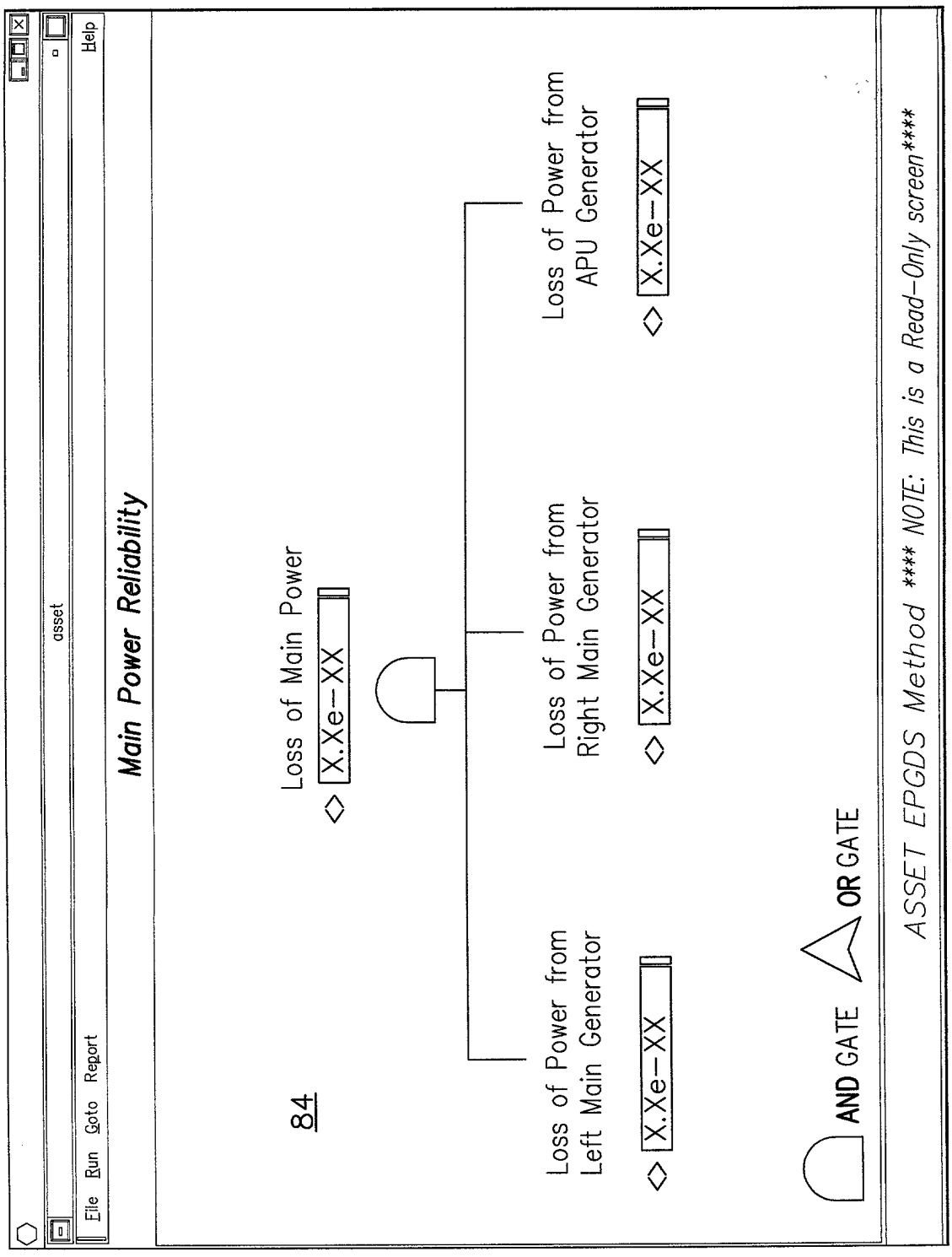
asset
File Run Goto Report Help
Main Power Reliability
84
Loss of Main Power
X.Xe-XX
Loss of Power from Left Main Generator
X.Xe-XX
Loss of Power from Right Main Generator
X.Xe-XX
Loss of Power from APU Generator
X.Xe-XX
AND GATE
OR GATE
ASSET EPGDS Method **** NOTE: This is a Read-Only screen****

FIG. 47

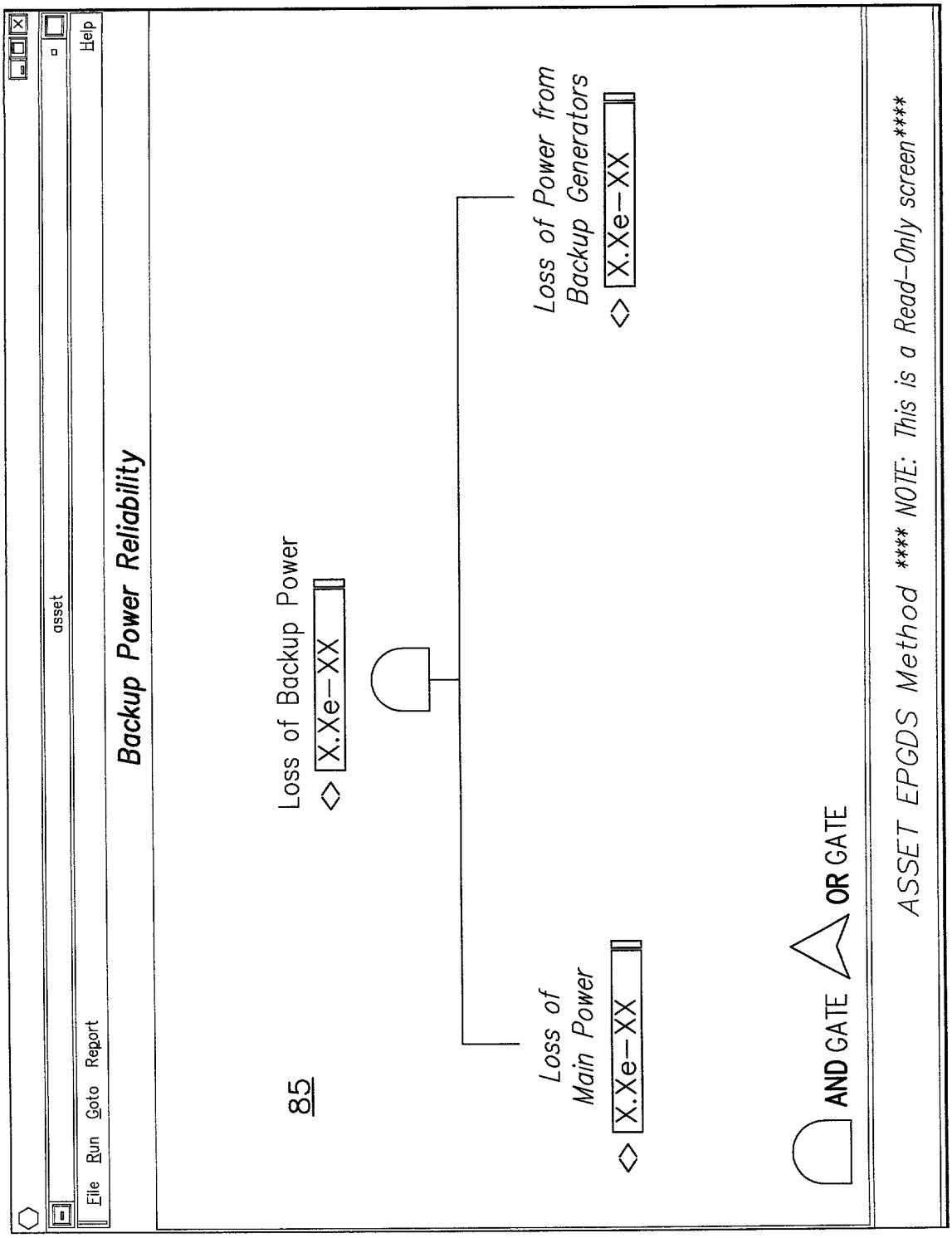
asset
File Run Goto Report Help
Backup Power Reliability
Loss of Backup Power
X.Xe-XX
85
Loss of Power from Backup Generators
X.Xe-XX
Loss of Main Power
X.Xe-XX
AND GATE
OR GATE
ASSET EPGDS Method **** NOTE: This is a Read-Only screen****

FIG. 48

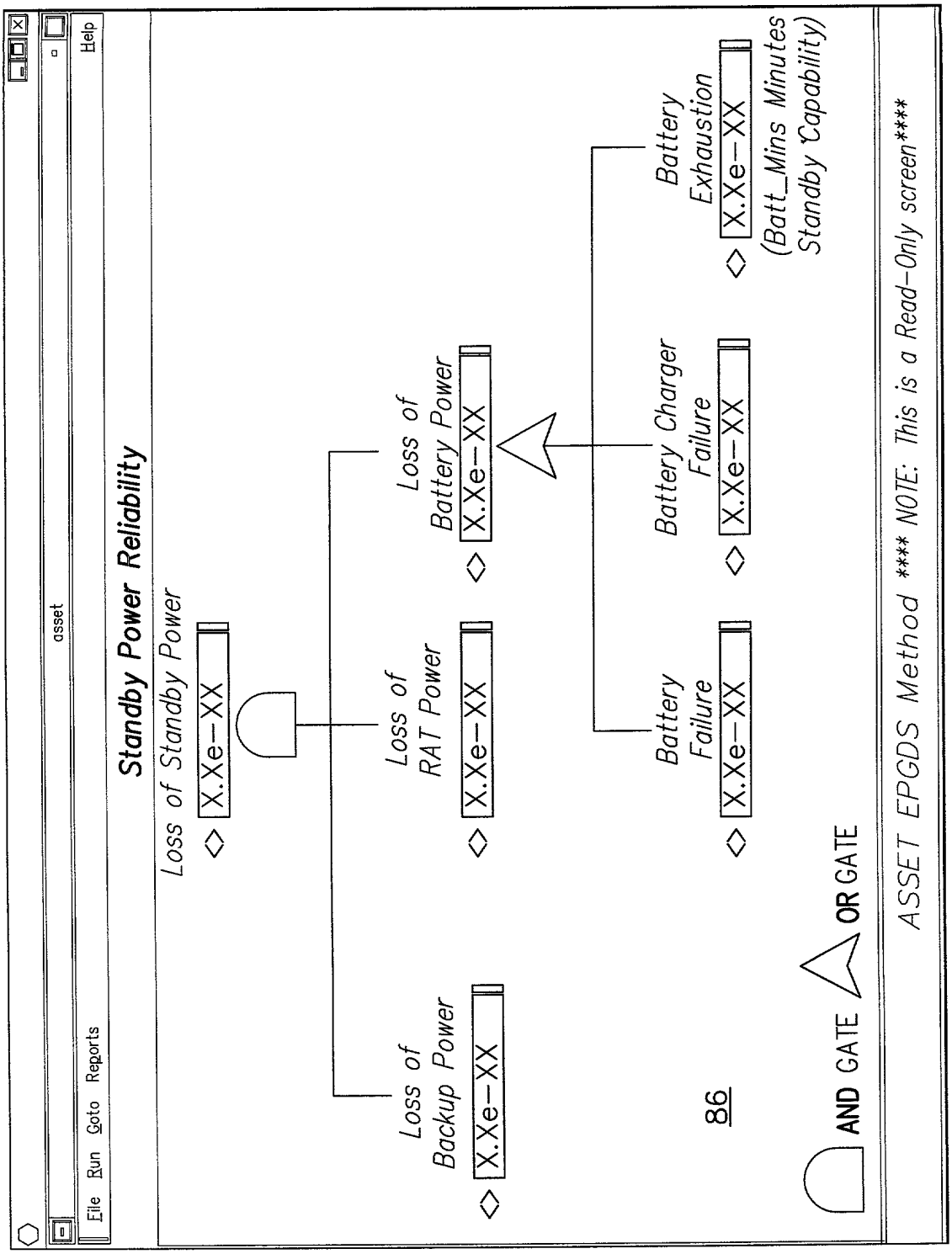
asset
File Run Goto Reports Help
Standby Power Reliability
Loss of Standby Power
X.Xe-XX
Loss of Backup Power
X.Xe-XX
Loss of RAT Power
X.Xe-XX
Loss of Battery Power
X.Xe-XX
Battery Failure
X.Xe-XX
Battery Charger Failure
X.Xe-XX
Battery Exhaustion
X.Xe-XX
(Batt_Mins Minutes Standby Capability)
86
AND GATE
OR GATE
ASSET EPGDS Method **** NOTE: This is a Read-Only screen****

FIG. 49

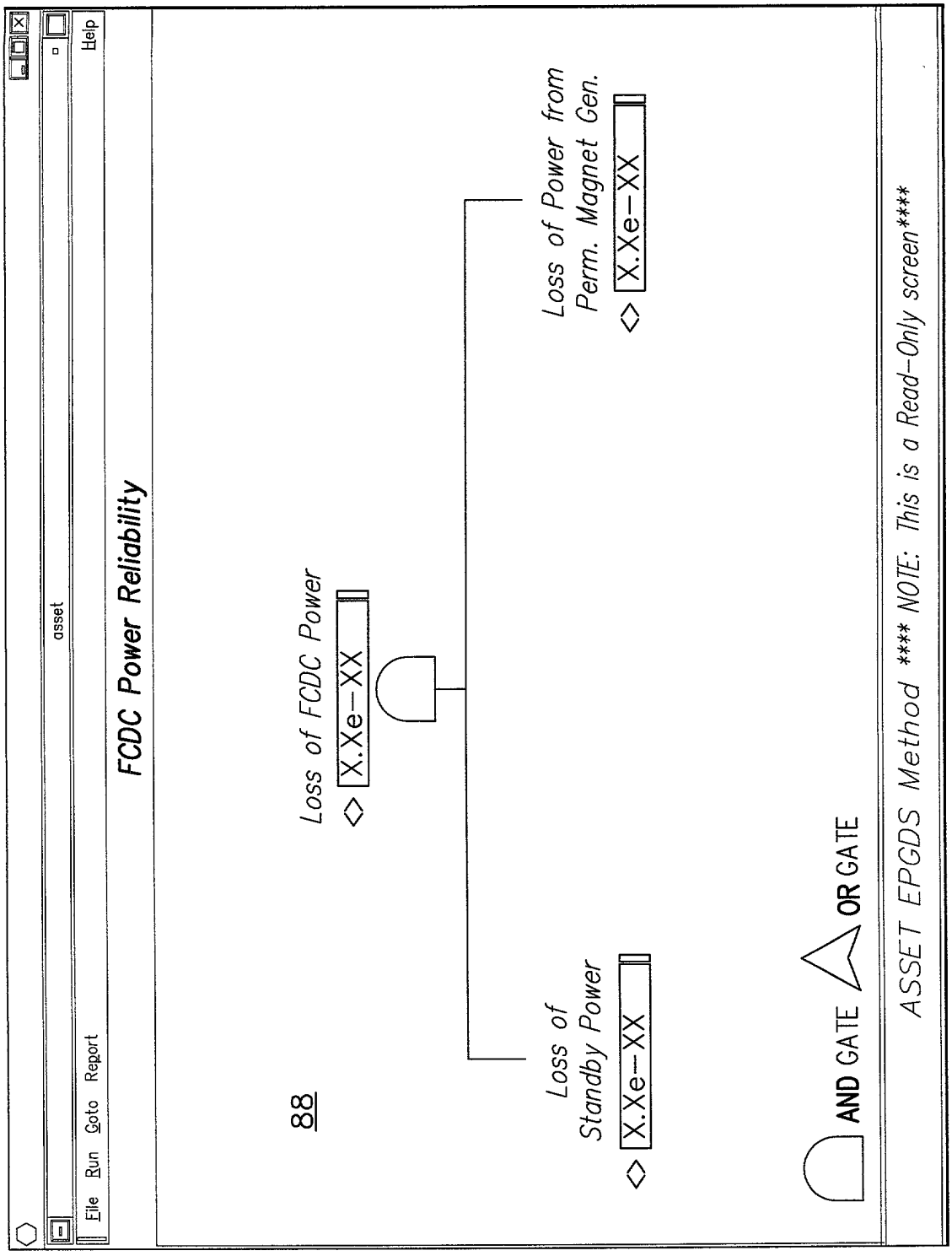
asset
File Run Goto Report Help
FCDC Power Reliability
88
Loss of FCDC Power
X.Xe-XX
Loss of Power from Perm. Magnet Gen.
X.Xe-XX
Loss of Standby Power
X.Xe-XX
AND GATE
OR GATE
ASSET EPGDS Method **** NOTE: This is a Read-Only screen****

FIG. 50

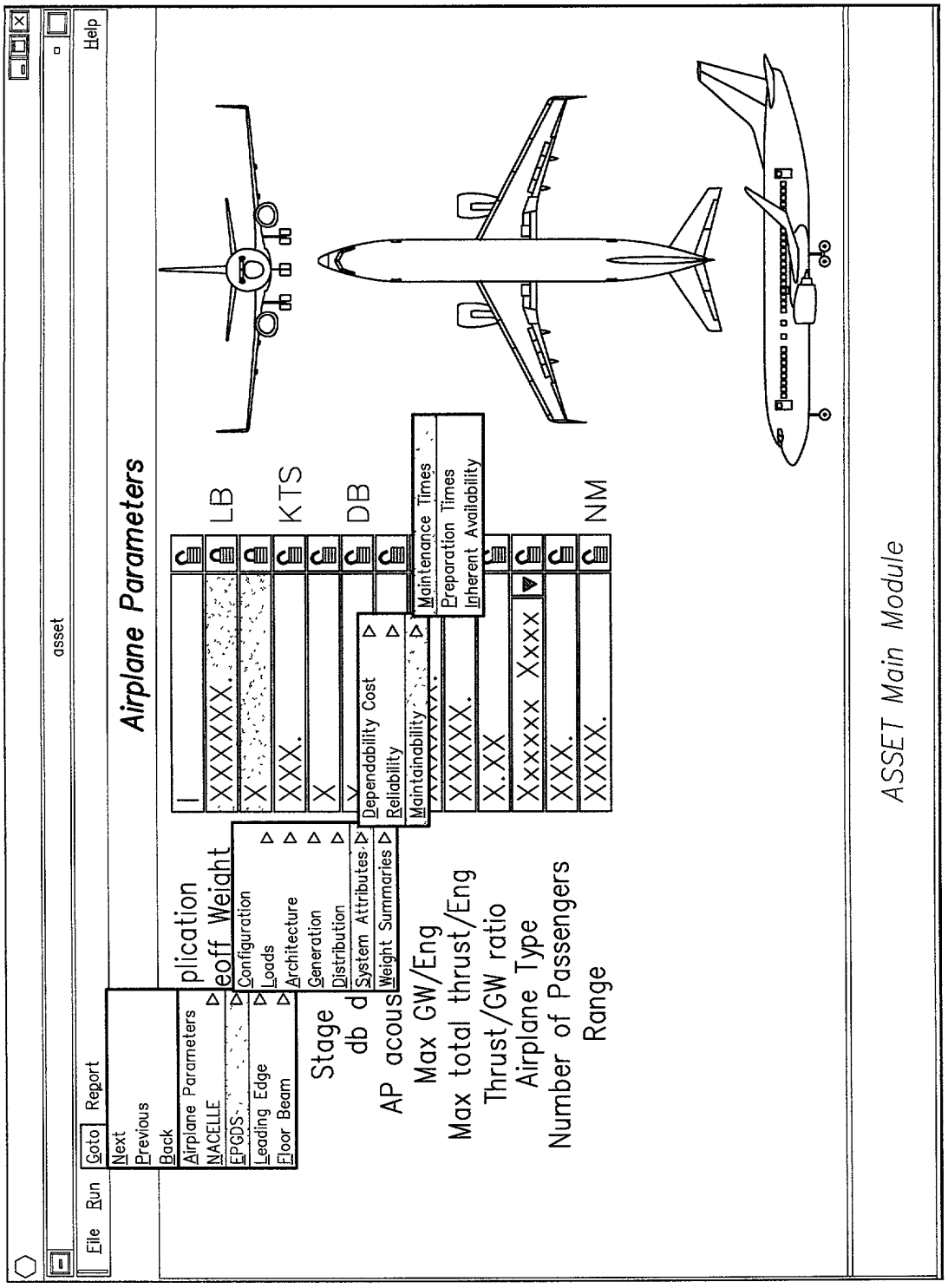
File Run Goto Report Help
Next
Previous
Back
asset
Airplane Parameters
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
Dependability Cost
Reliability
Maintainability
Maintenance Times
Preparation Times
Inherent Availability
plication
eoff Weight
Stage
db d
AP acous
Max GW/Eng
Max total thrust/Eng
Thrust/GW ratio
Airplane Type
Number of Passengers
Range
XXXXXX.
X
XXX.
X
Y
XXXXX.
X.XX
Xxxxx Xxxx
XXX.
XXXX.
LB
KTS
DB
NM
ASSET Main Module

FIG. 51

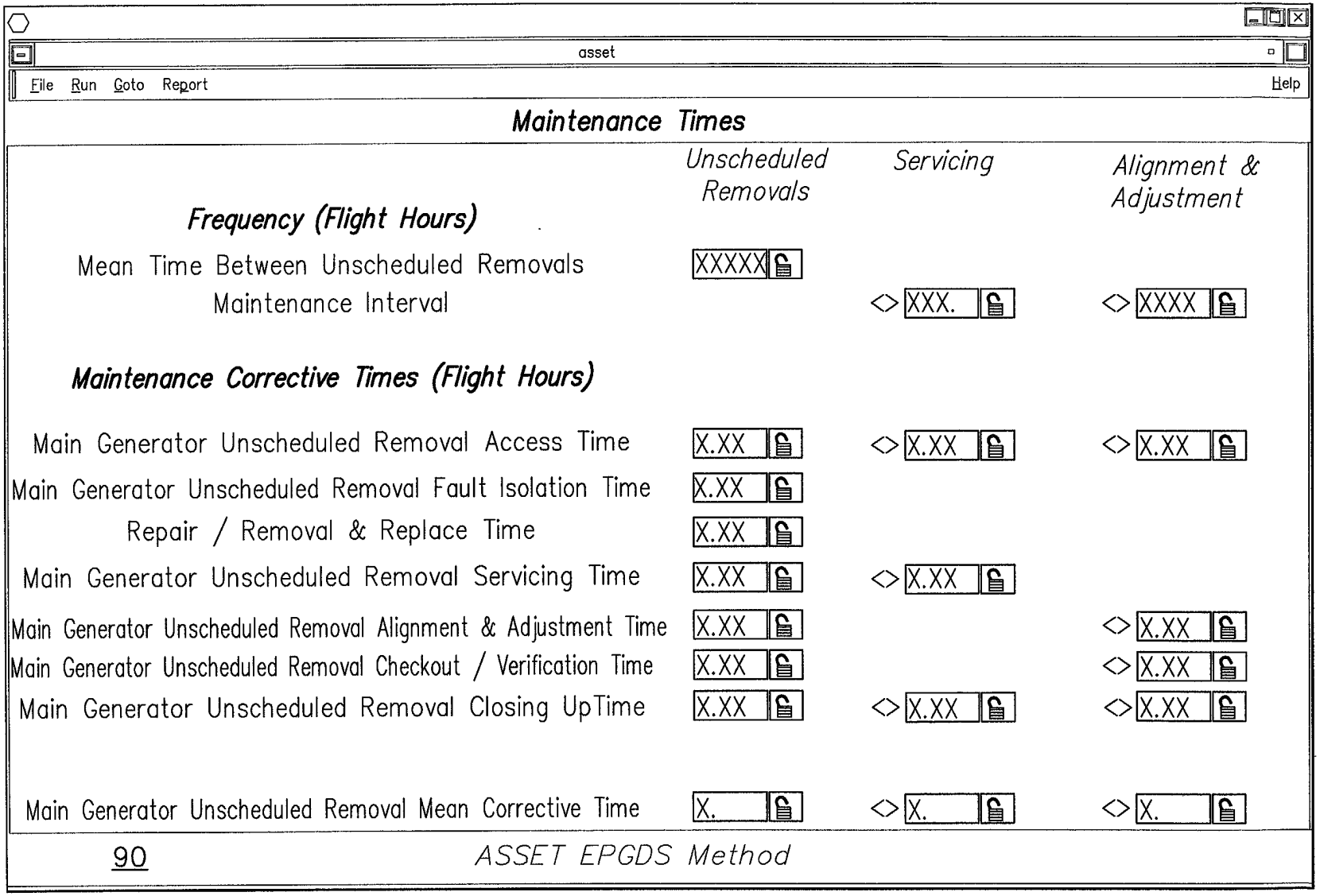

FIG. 52

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

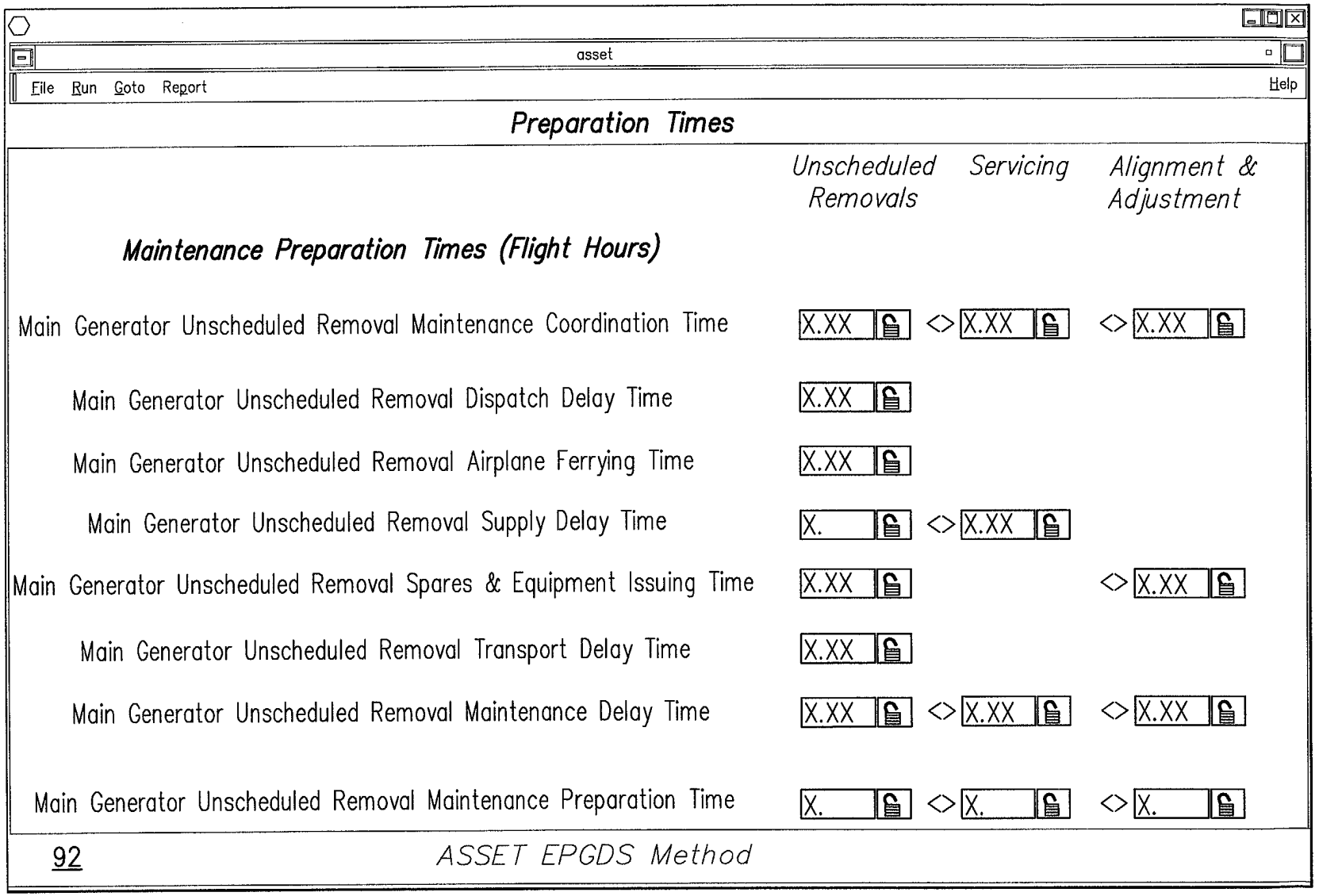

FIG. 53

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

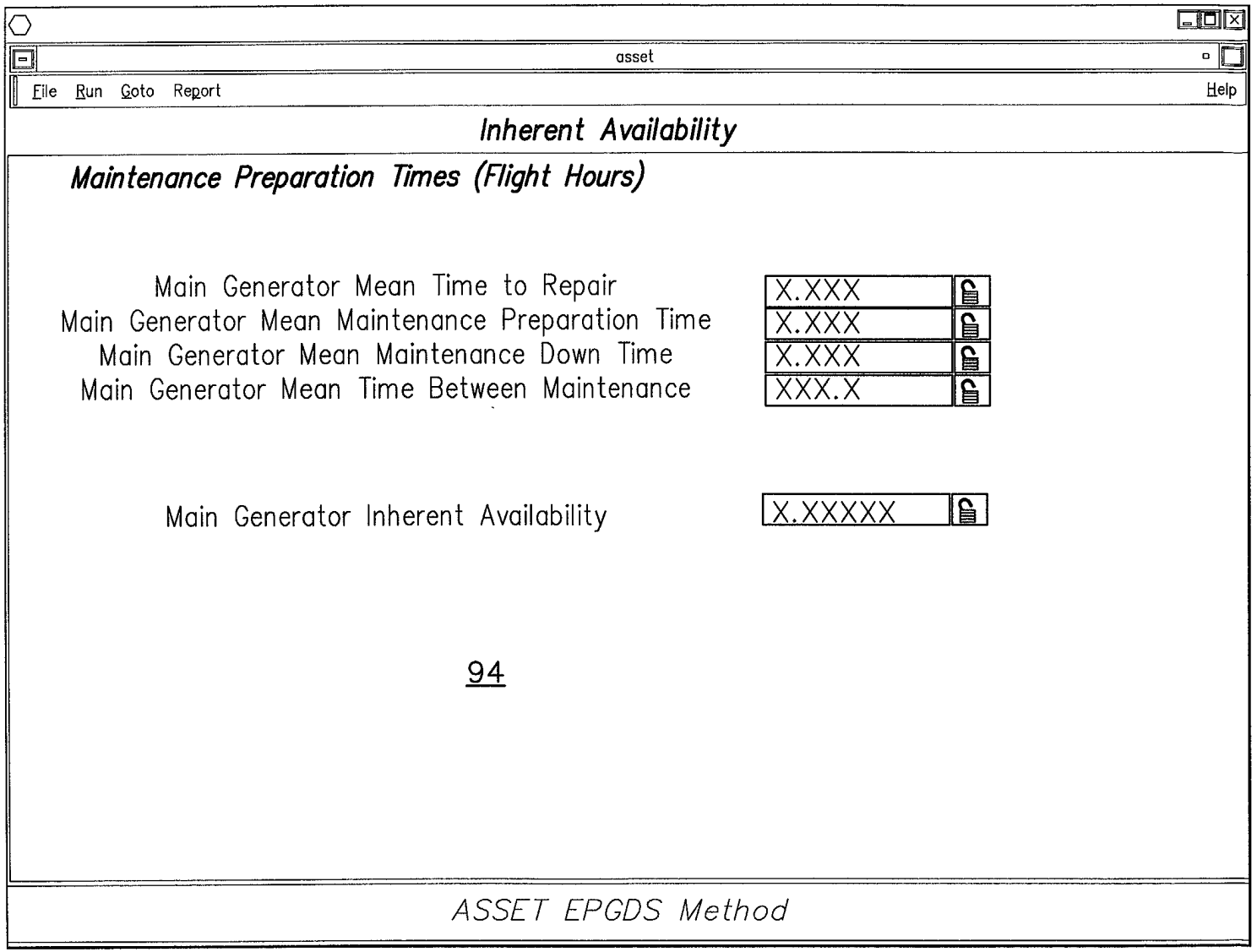

FIG. 54

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

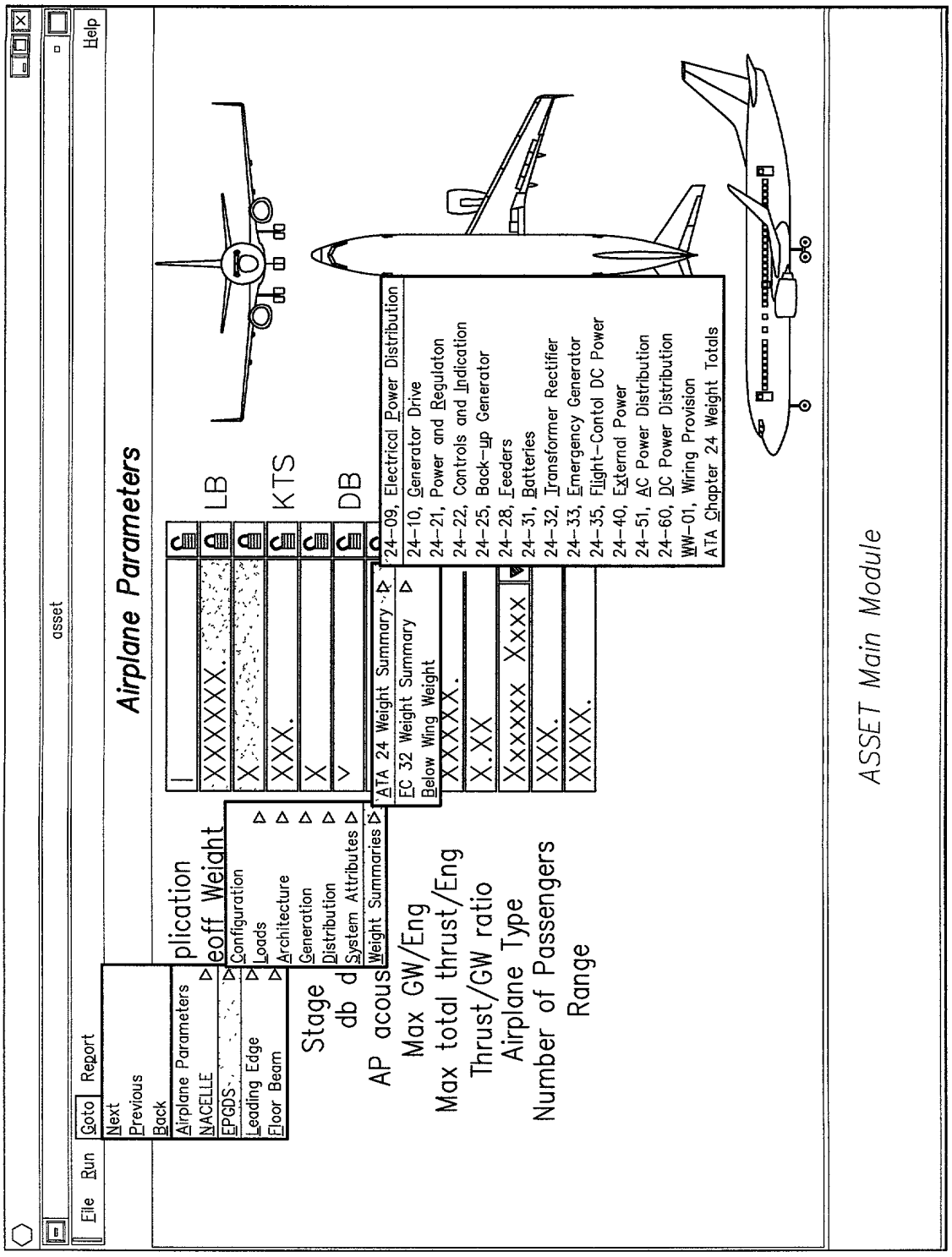

FIG. 55

20070125569

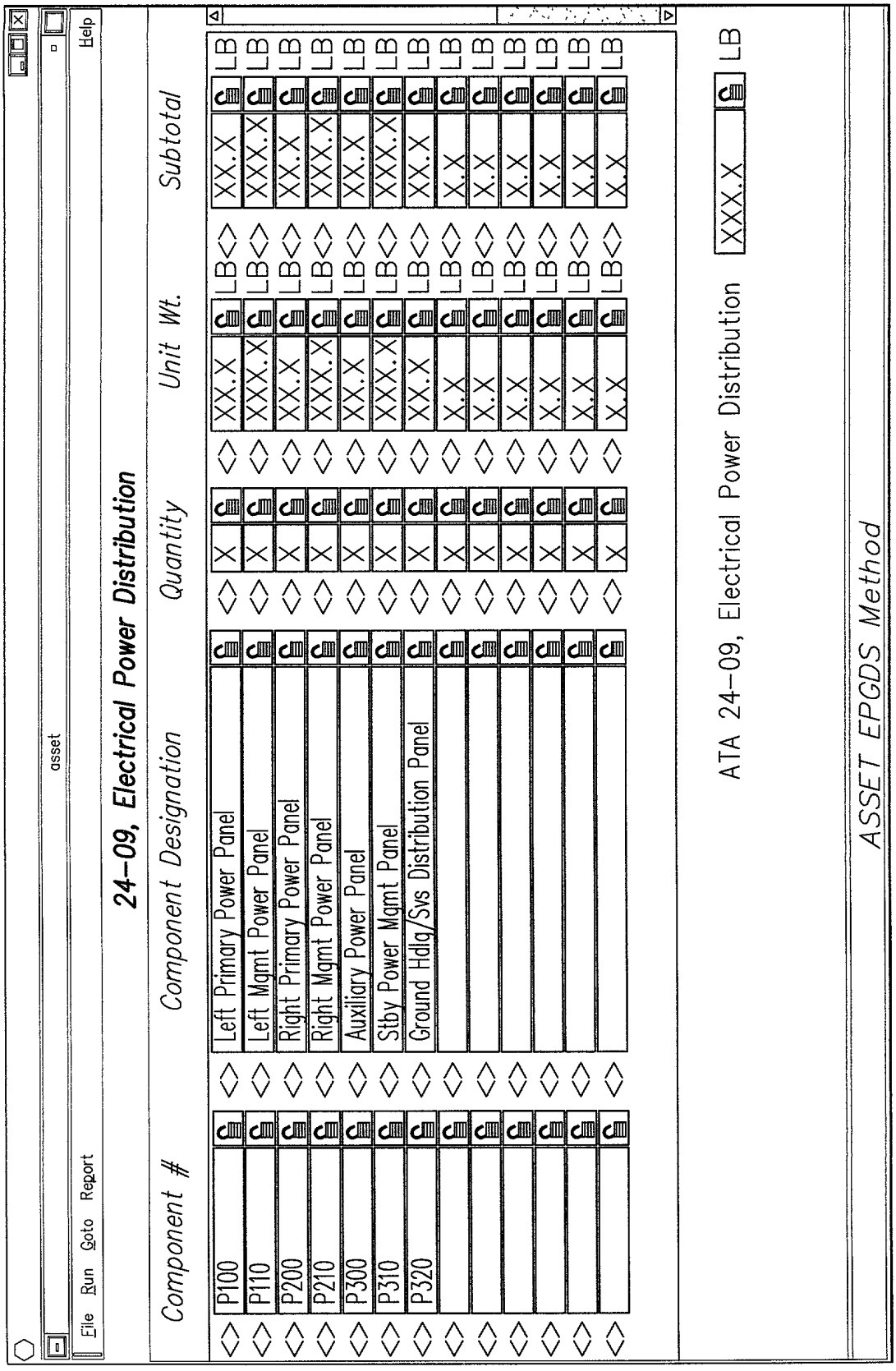
File Run Goto Report
Help
asset
24-09, Electrical Power Distribution
Component #
Component Designation
Quantity
Unit Wt.
Subtotal
P100 Left Primary Power Panel X XX.X LB<> XX.X LB
P110 Left Mgmt Power Panel X XXX.X LB<> XXX.X LB
P200 Right Primary Power Panel X XX.X LB<> XX.X LB
P210 Right Mgmt Power Panel X XXX.X LB<> XXX.X LB
P300 Auxiliary Power Panel X XX.X LB<> XX.X LB
P310 Stby Power Mgmt Panel X XXX.X LB<> XXX.X LB
P320 Ground Hdlg/Svs Distribution Panel X XX.X LB<> XX.X LB
X X.X LB<> X.X LB
X X.X LB<> X.X LB
X X.X LB<> X.X LB
X X.X LB<> X.X LB
X X.X LB<> X.X LB
ATA 24-09, Electrical Power Distribution XXX.X LB
ASSET EPGDS Method

FIG. 56

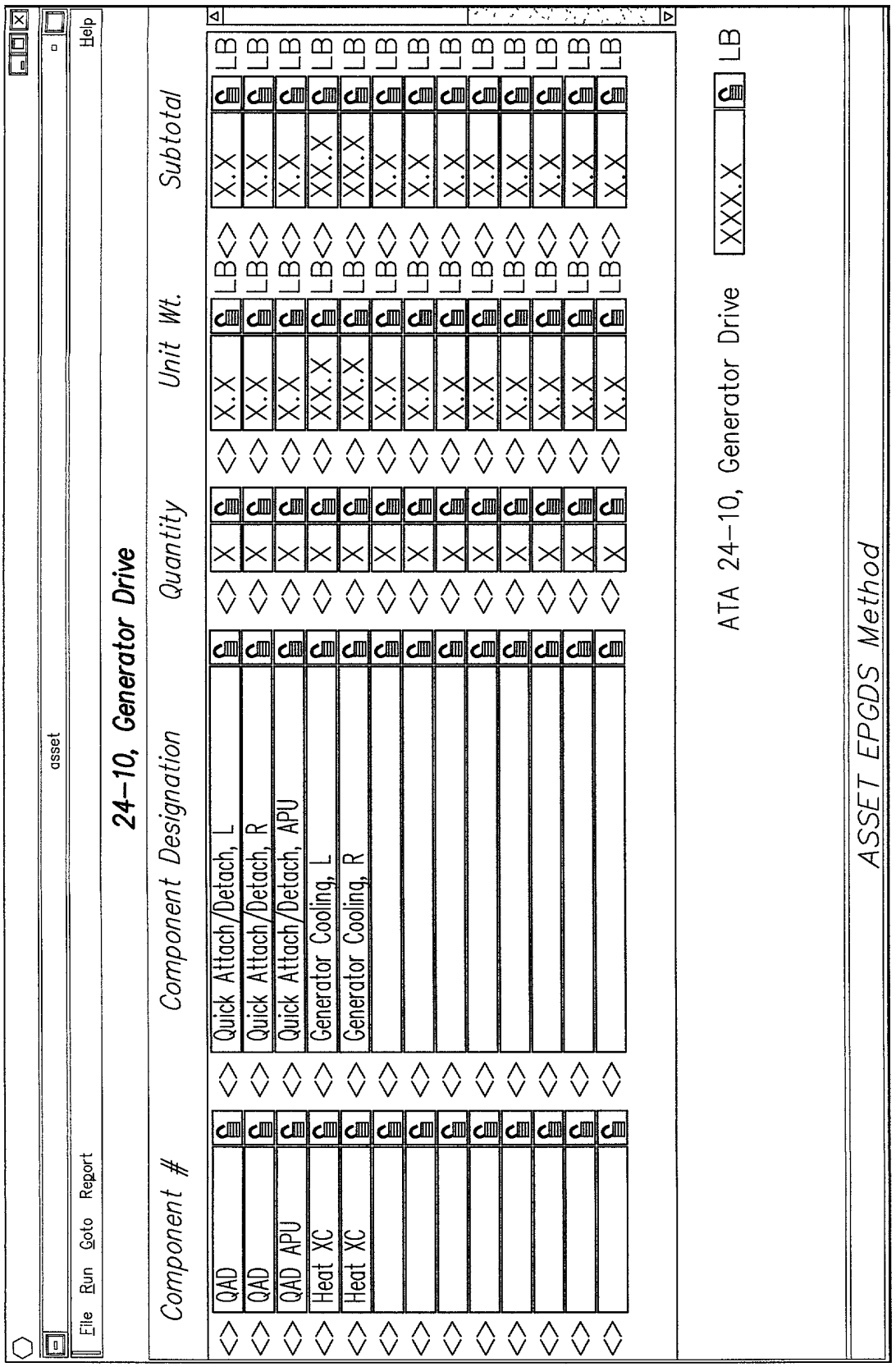
asset
File Run Goto Report Help
24-10, Generator Drive
Component #
Component Designation
Quantity
Unit Wt.
Subtotal
QAD
Quick Attach/Detach, L
Quick Attach/Detach, R
QAD APU
Quick Attach/Detach, APU
Heat XC
Generator Cooling, L
Heat XC
Generator Cooling, R
X
X.X
XX.X
LB
ATA 24-10, Generator Drive
XXX.X
LB
ASSET EPGDS Method

FIG. 57

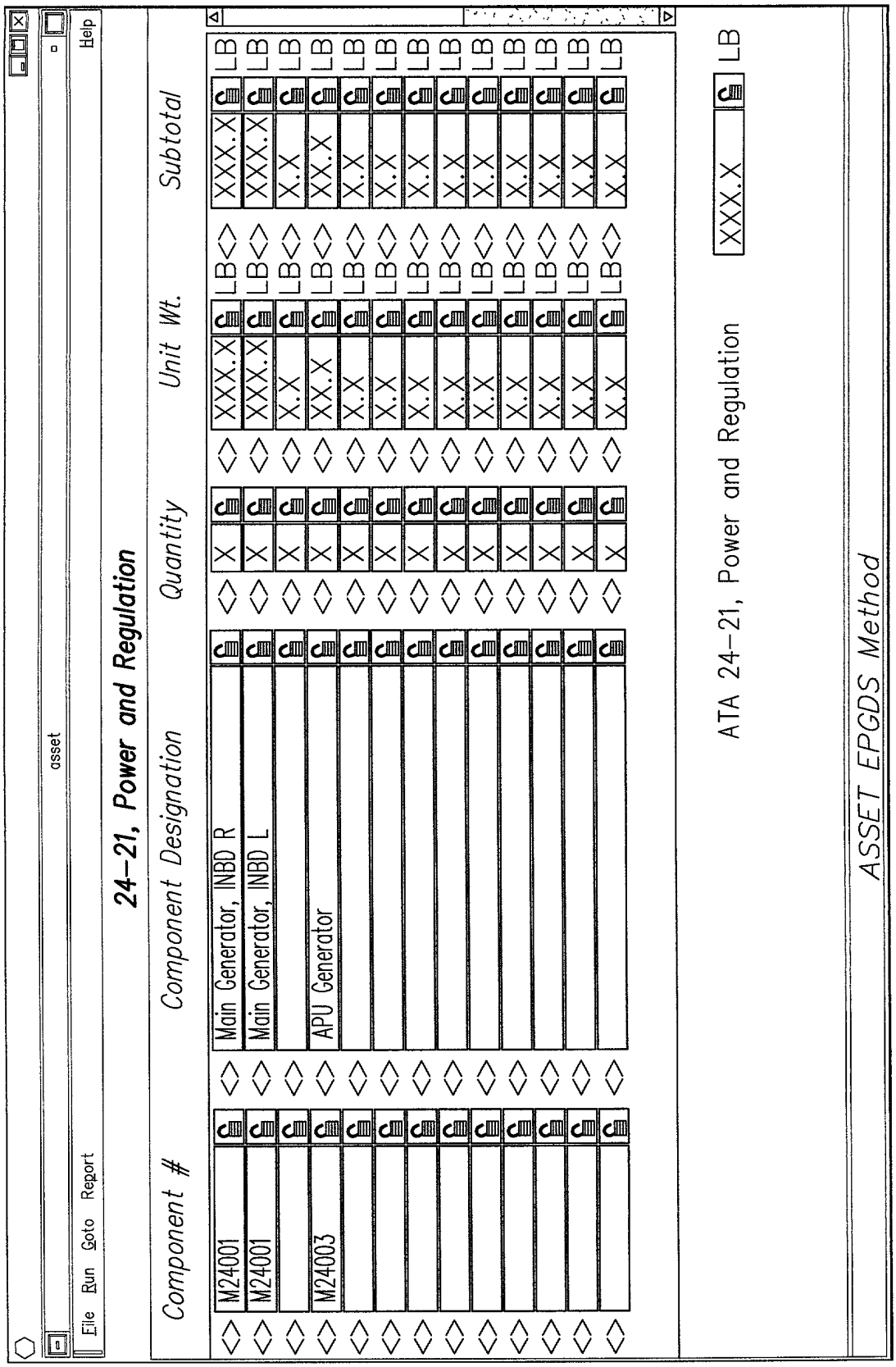
asset
File Run Goto Report Help
24-21, Power and Regulation
Component #
Component Designation
Quantity
Unit Wt.
Subtotal
M24001
Main Generator, INBD R
M24001
Main Generator, INBD L
M24003
APU Generator
ATA 24-21, Power and Regulation
XXX.X
LB
ASSET EPGDS Method

FIG. 58

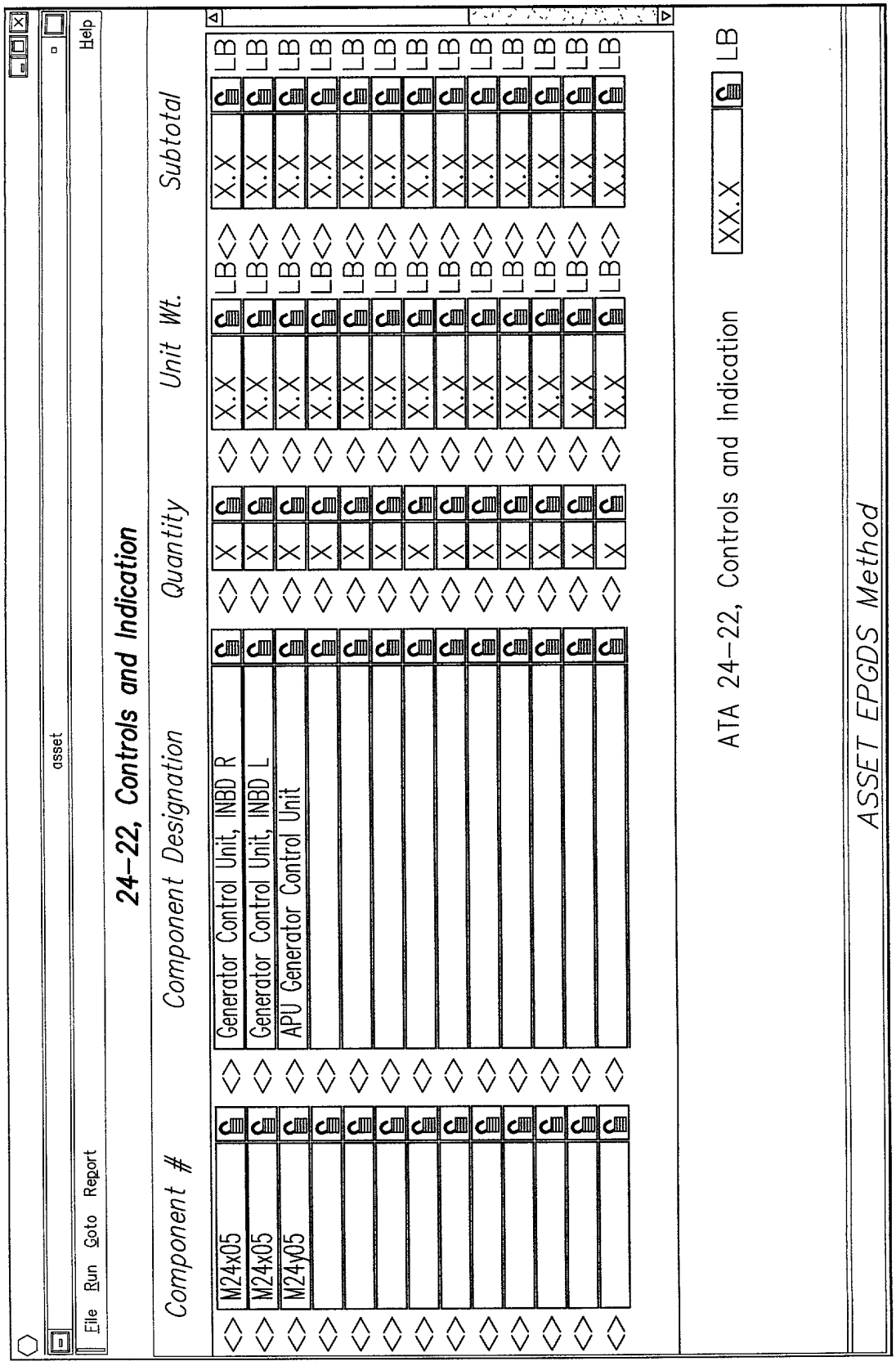

FIG. 59

20020150245A1

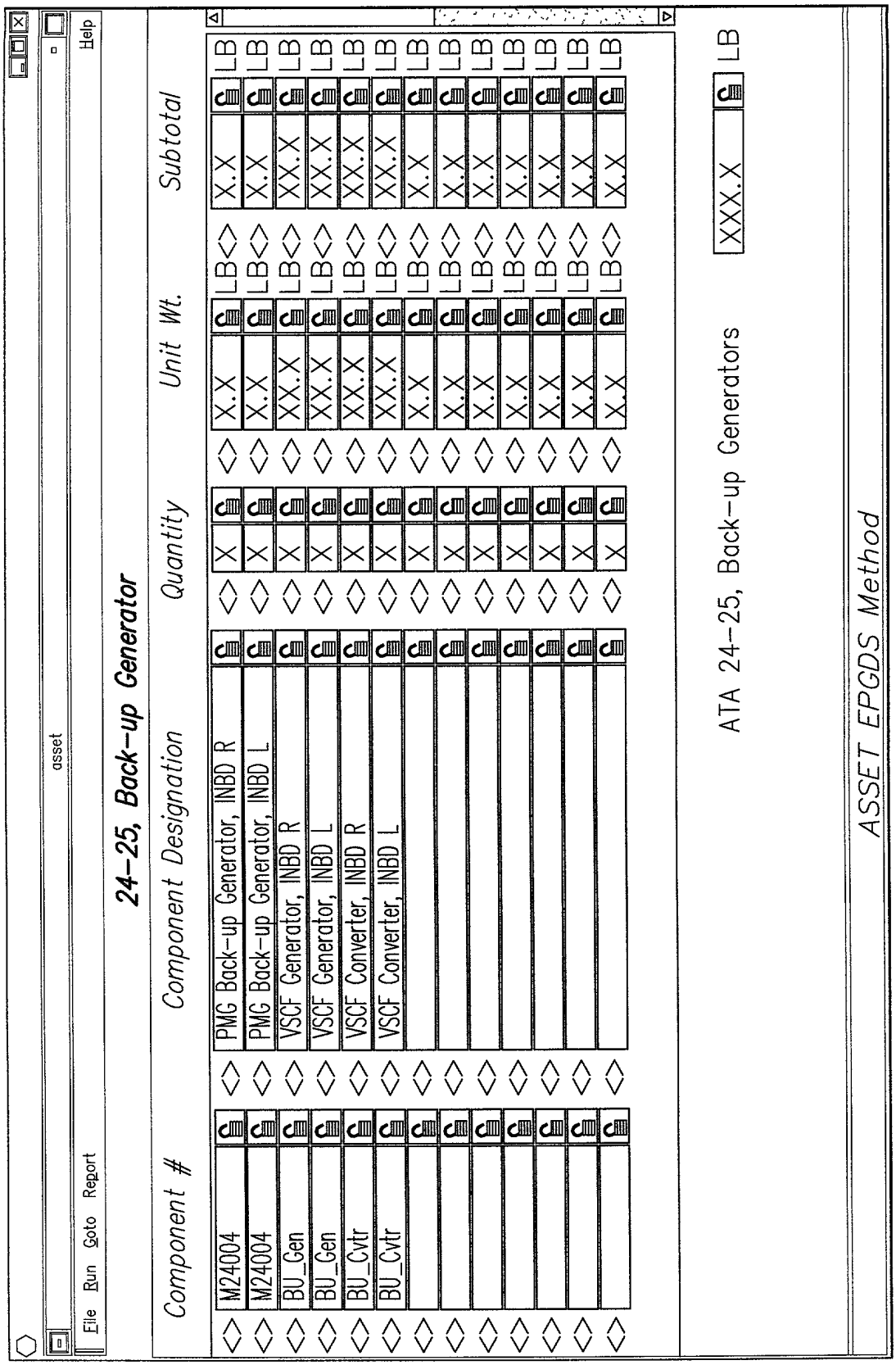
File Run Goto Report
Help
asset
24-25, Back-up Generator
Component #
Component Designation
Quantity
Unit Wt.
Subtotal
M24004
PMG Back-up Generator, INBD R
M24004
PMG Back-up Generator, INBD L
BU_Gen
VSCF Generator, INBD R
BU_Gen
VSCF Generator, INBD L
BU_Cvtr
VSCF Converter, INBD R
BU_Cvtr
VSCF Converter, INBD L
X
X.X
XX.X
X.X
LB
ATA 24-25, Back-up Generators
XXX.X
LB
ASSET EPGDS Method

FIG. 60

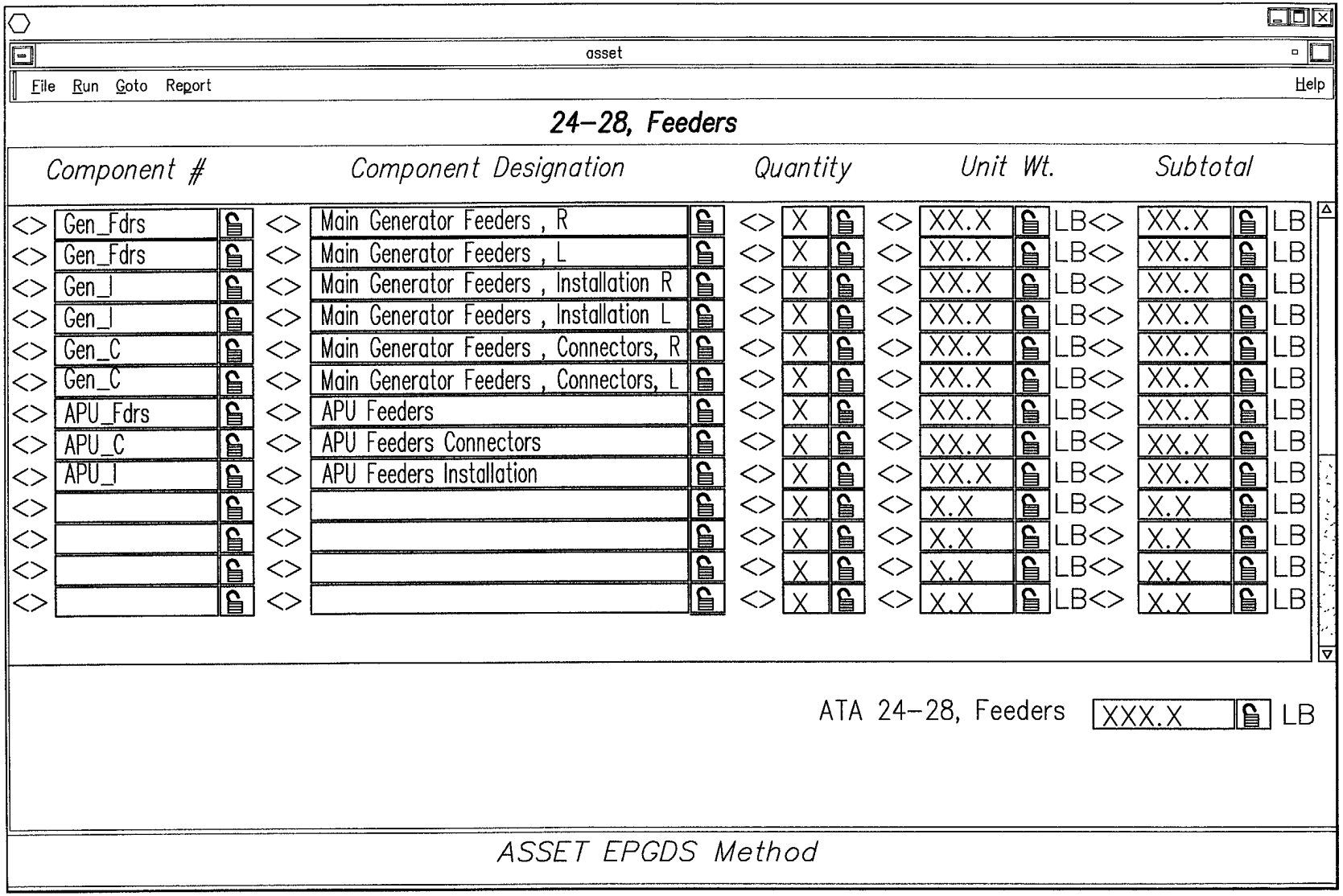

FIG. 61

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

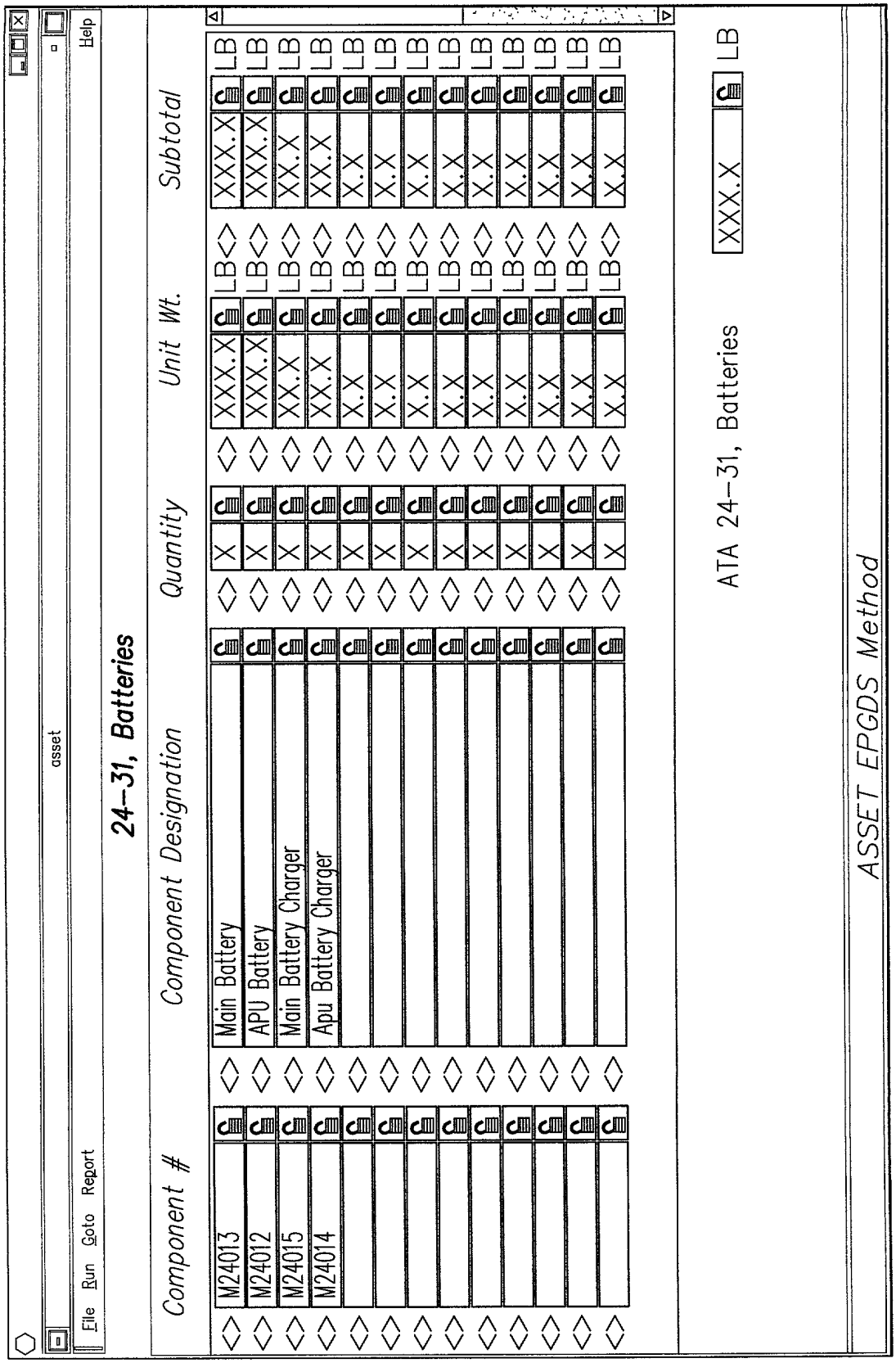
asset
File Run Goto Report Help
24-31, Batteries
Component #
Component Designation
Quantity
Unit Wt.
Subtotal
M24013
M24012
M24015
M24014
Main Battery
APU Battery
Main Battery Charger
Apu Battery Charger
XXX.X
XXX.X
XX.X
XX.X
X.X
X.X
X.X
X.X
X.X
X.X
X.X
X.X
X.X
X.X
X.X
X.X
LB
ATA 24-31, Batteries
XXX.X
LB
ASSET EPGDS Method

FIG. 62

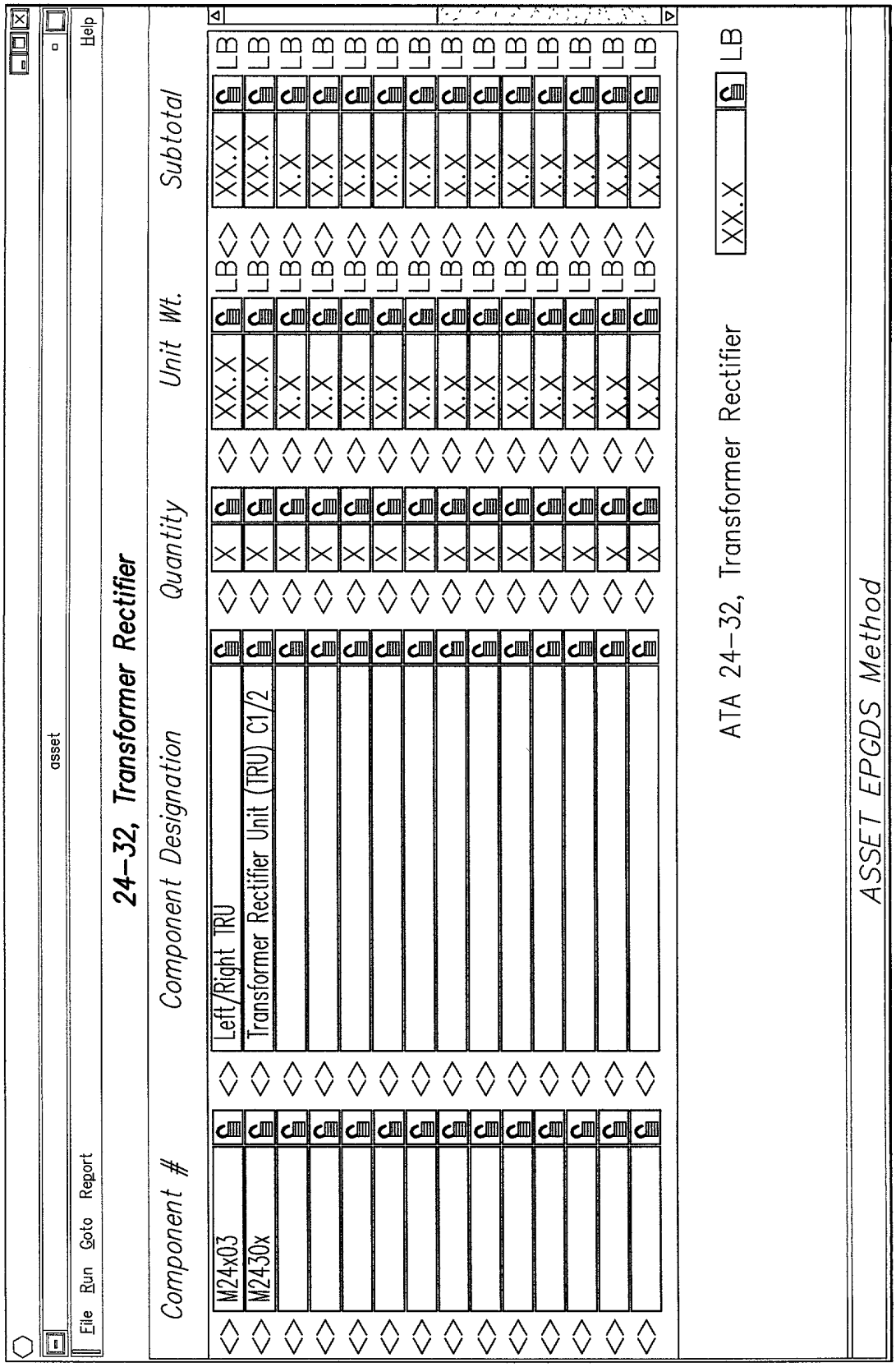
asset
File Run Goto Report Help
24-32, Transformer Rectifier
Component #
Component Designation
Quantity
Unit Wt.
Subtotal
M24x03
M2430x
Left/Right TRU
Transformer Rectifier Unit (TRU) C1/2
XX.X
X.X
LB
ATA 24-32, Transformer Rectifier
ASSET EPGDS Method

FIG. 63

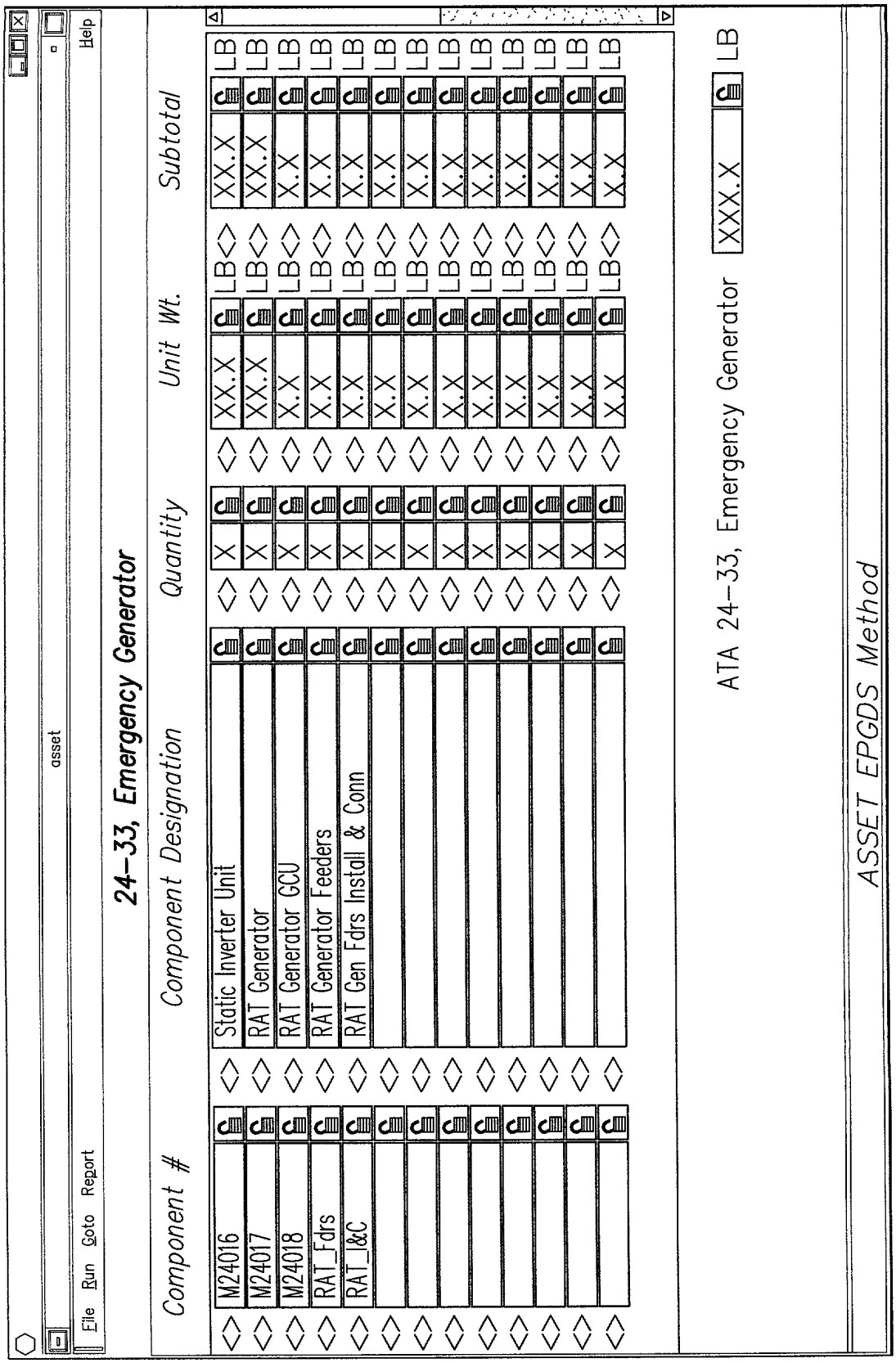
File Run Goto Report
Help
asset
24-33, Emergency Generator
Component #
Component Designation
Quantity
Unit Wt.
Subtotal
M24016
M24017
M24018
RAT_Fdrs
RAT_I&C
Static Inverter Unit
RAT Generator
RAT Generator GCU
RAT Generator Feeders
RAT Gen Fdrs Install & Conn
XX.X
X.X
LB
ATA 24-33, Emergency Generator
XXX.X
ASSET EPGDS Method

FIG. 64

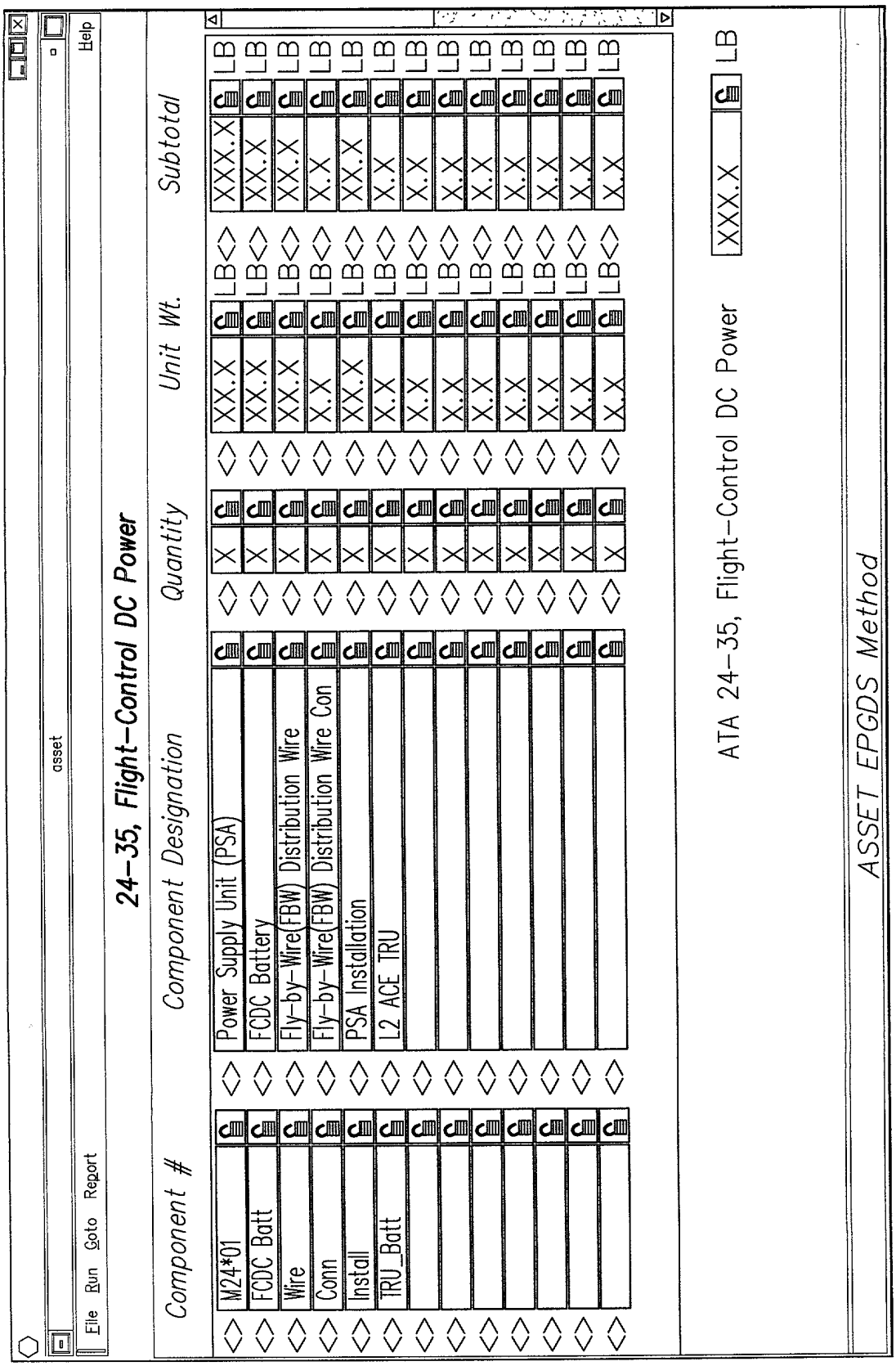
File Run Goto Report
Help
asset
24-35, Flight-Control DC Power
Component #
Component Designation
Quantity
Unit Wt.
Subtotal
M24*01
FCDC Batt
Wire
Conn
Install
TRU_Batt
Power Supply Unit (PSA)
FCDC Battery
Fly-by-Wire(FBW) Distribution Wire
Fly-by-Wire(FBW) Distribution Wire Con
PSA Installation
L2 ACE TRU
LB
ATA 24-35, Flight-Control DC Power
XXX.X
ASSET EPGDS Method

FIG. 65

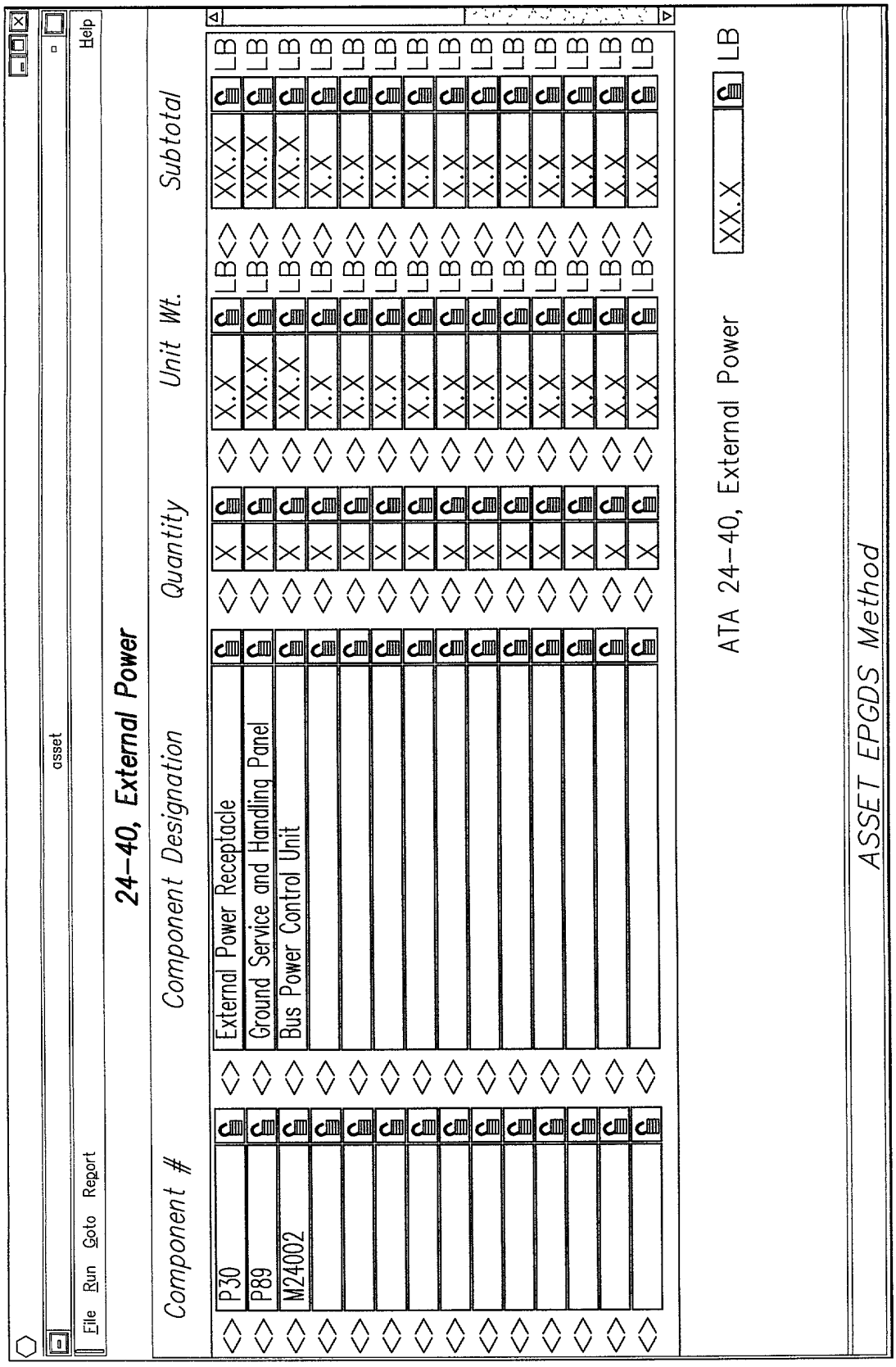
File Run Goto Report
Help
asset
24-40, External Power
Component #
Component Designation
Quantity
Unit Wt.
Subtotal
P30
P89
M24002
External Power Receptacle
Ground Service and Handling Panel
Bus Power Control Unit
X
X.X
XX.X
XXX.X
LB
ATA 24-40, External Power
ASSET EPGDS Method

FIG. 66

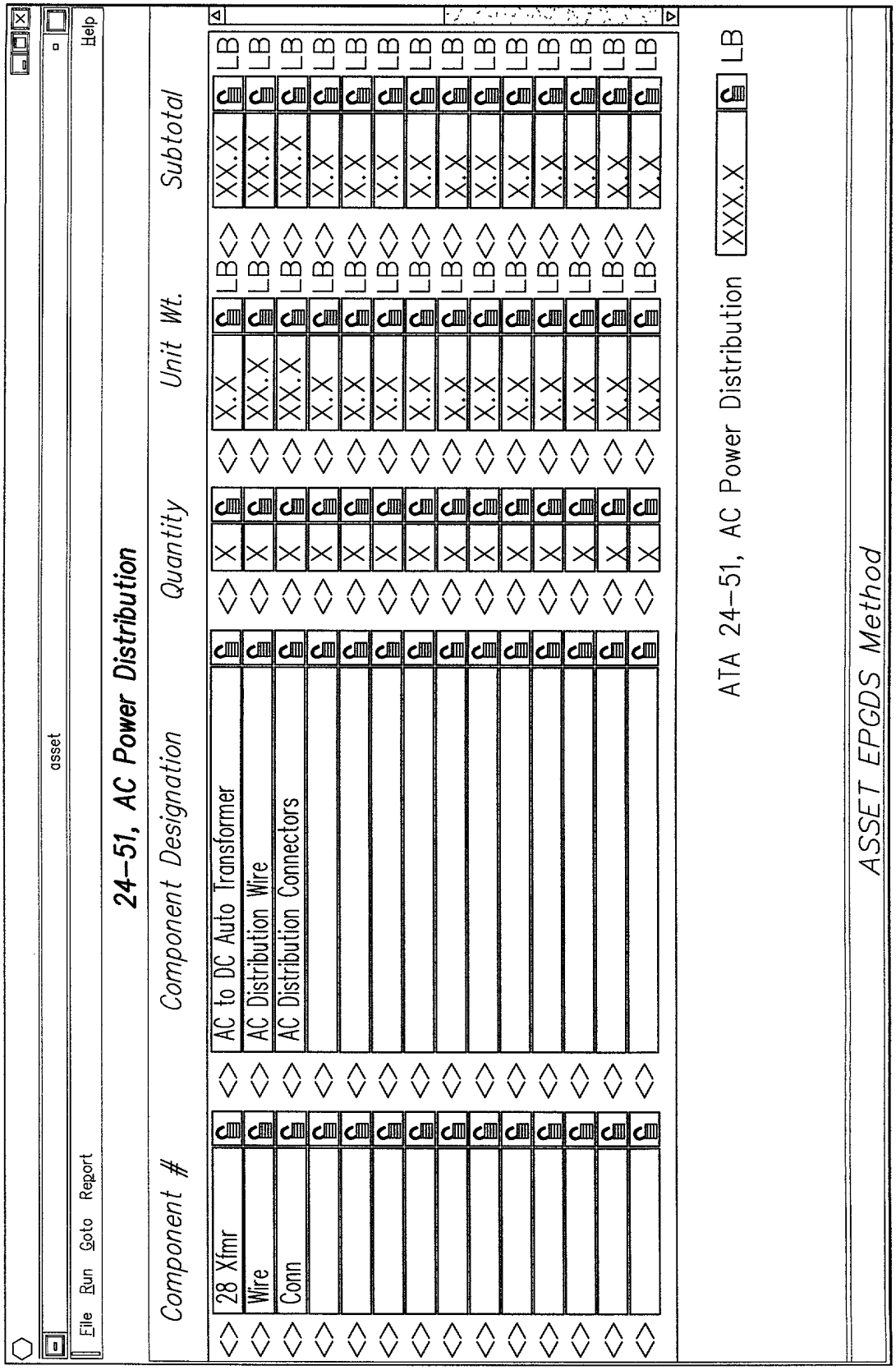
asset
File Run Goto Report Help
24-51, AC Power Distribution
Component #
Component Designation
Quantity
Unit Wt.
Subtotal
28 Xfmr
Wire
Conn
AC to DC Auto Transformer
AC Distribution Wire
AC Distribution Connectors
X
X.X
XX.X
XXX.X
LB
ATA 24-51, AC Power Distribution
ASSET EPGDS Method

FIG. 67

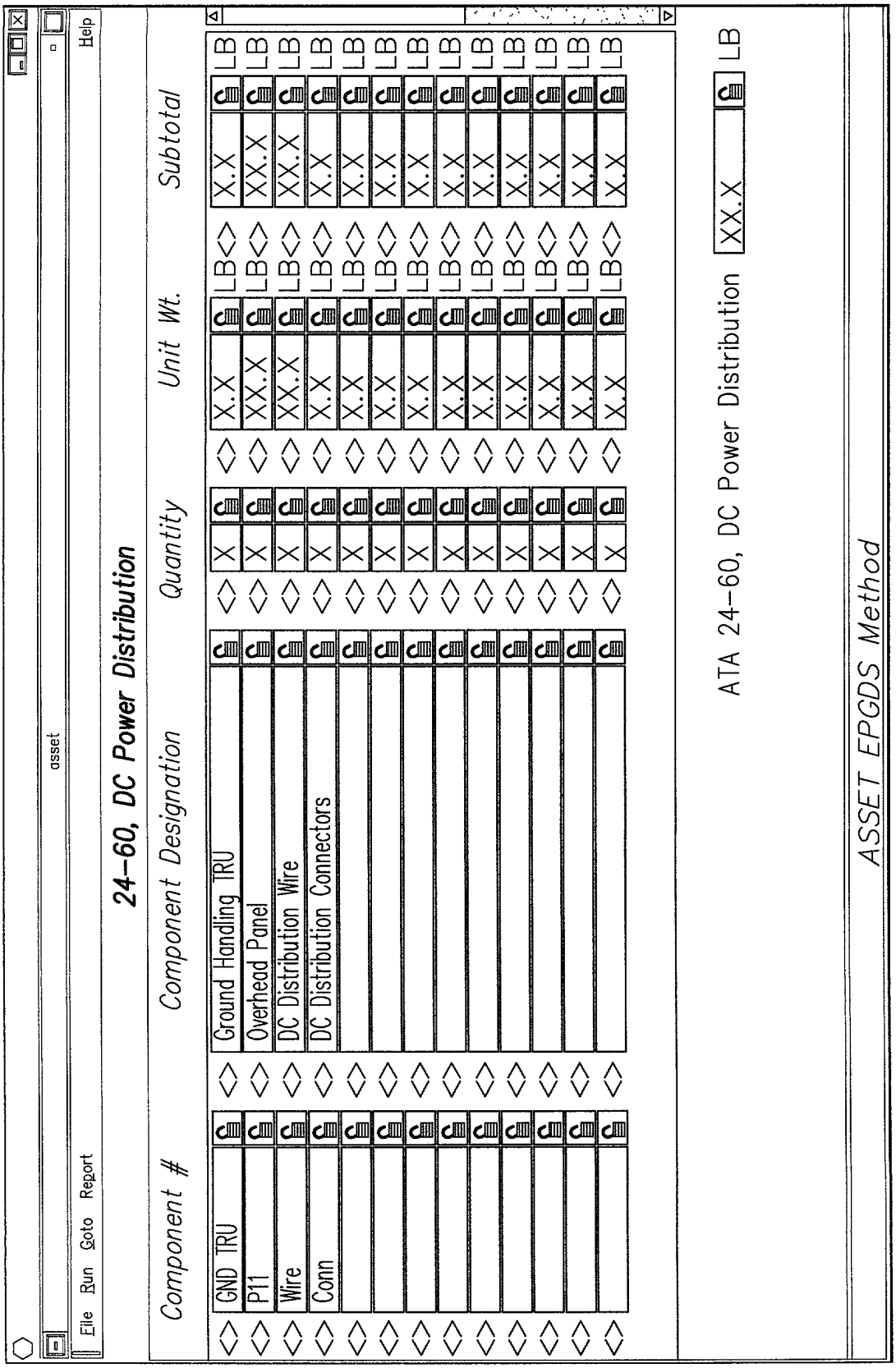
asset
File Run Goto Report Help
24-60, DC Power Distribution
Component #
Component Designation
Quantity
Unit Wt.
Subtotal
GND TRU
P11
Wire
Conn
Ground Handling TRU
Overhead Panel
DC Distribution Wire
DC Distribution Connectors
X
X.X
XX.X
XX.X
LB
ATA 24-60, DC Power Distribution
XX.X
LB
ASSET EPGDS Method

FIG. 68

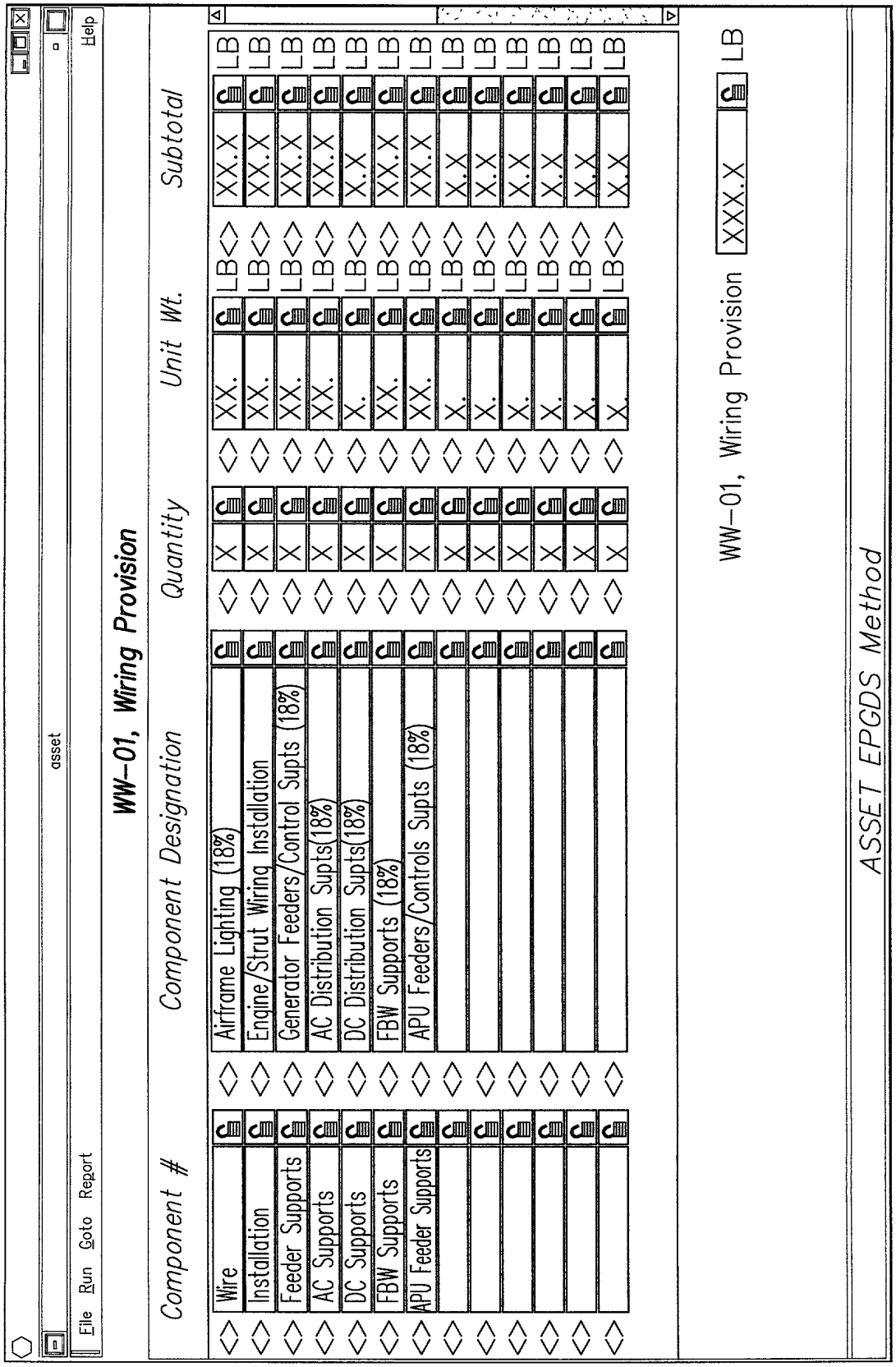
File Run Goto Report
Help
asset
WW-01, Wiring Provision
Component #
Component Designation
Quantity
Unit Wt.
Subtotal
Wire
Installation
Feeder Supports
AC Supports
DC Supports
FBW Supports
APU Feeder Supports
Airframe Lighting (18%)
Engine/Strut Wiring Installation
Generator Feeders/Control Supts (18%)
AC Distribution Supts(18%)
DC Distribution Supts(18%)
FBW Supports (18%)
APU Feeders/Controls Supts (18%)
XX.X
X.X
LB
WW-01, Wiring Provision XXX.X LB
ASSET EPGDS Method

FIG. 69

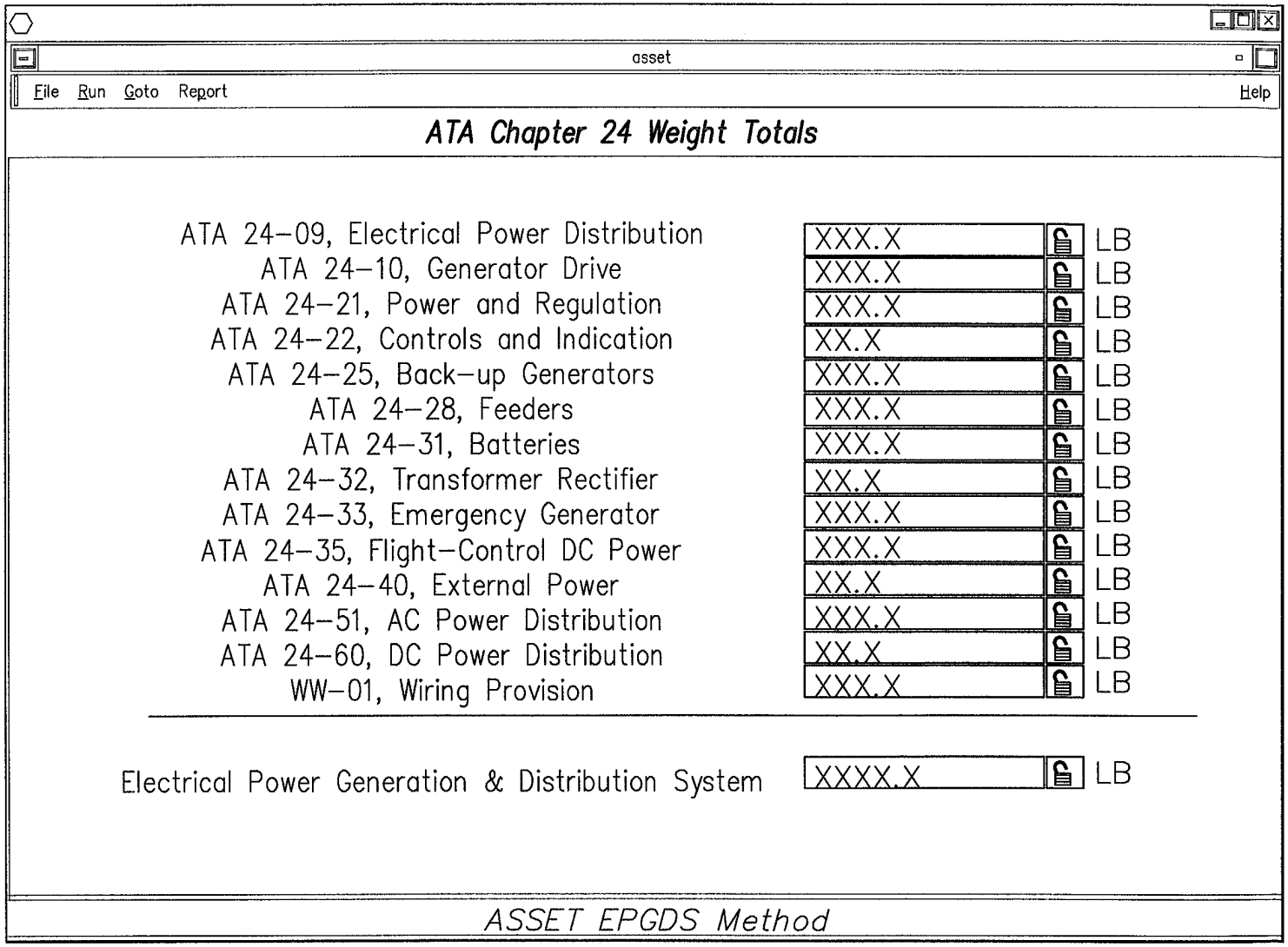

FIG. 70

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

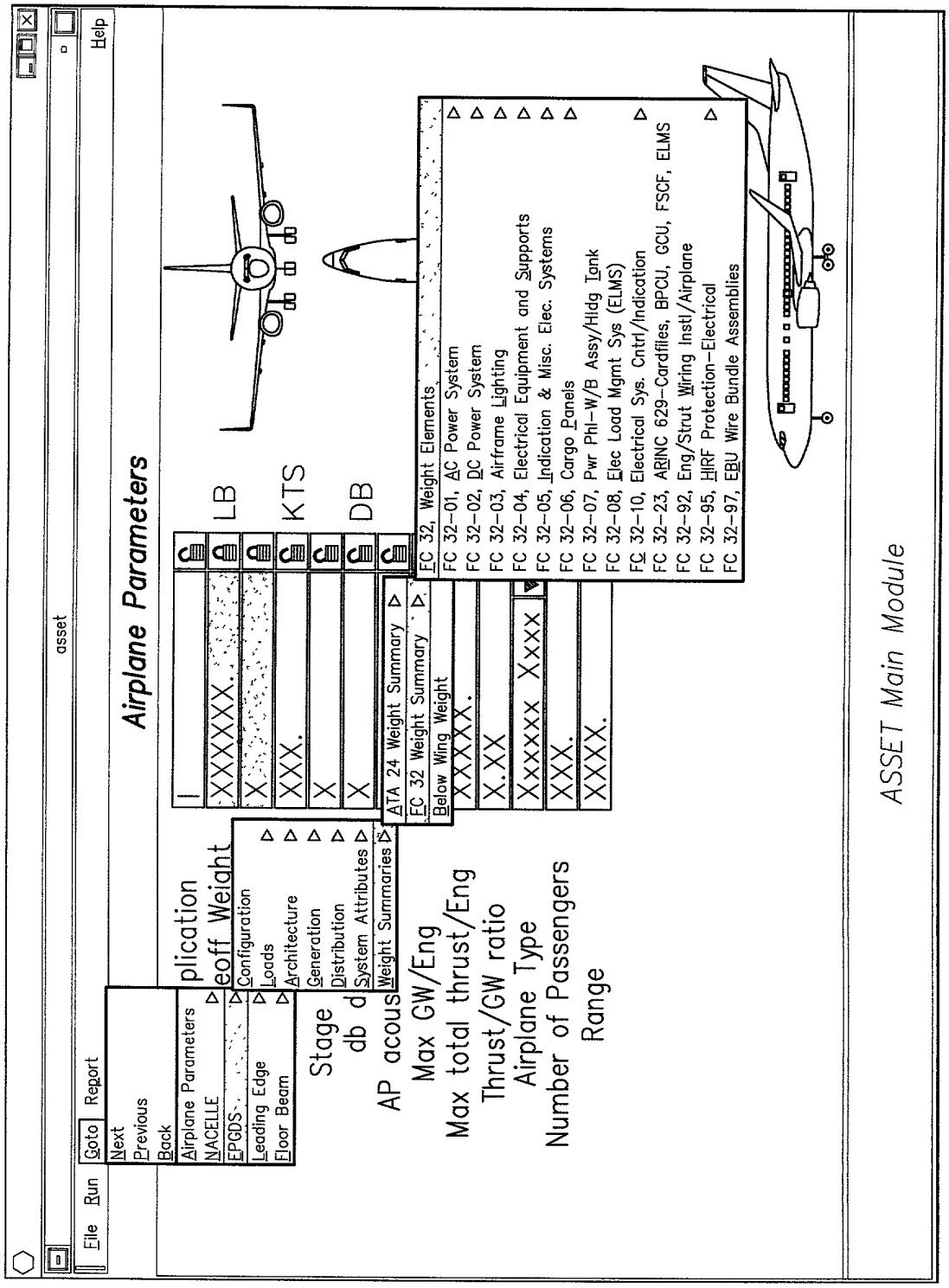
asset
File Run Goto Report Help
Next
Previous
Back
Airplane Parameters
NACELLE
EPGDS
Leading Edge
Floor Beam
Configuration
Loads
Architecture
Generation
Distribution
System Attributes
Weight Summaries
Stage
db d
AP acous
Max GW/Eng
Max total thrust/Eng
Thrust/GW ratio
Airplane Type
Number of Passengers
Range
plication
eoff Weight
XXXXX.
X
XXX.
X
X
LB
KTS
DB
ATA 24 Weight Summary
FC 32 Weight Summary
Below Wing Weight
XXXXX.
X.XX
XXXXX XXXX
XXX.
XXXX.
FC 32, Weight Elements
FC 32-01, AC Power System
FC 32-02, DC Power System
FC 32-03, Airframe Lighting
FC 32-04, Electrical Equipment and Supports
FC 32-05, Indication & Misc. Elec. Systems
FC 32-06, Cargo Panels
FC 32-07, Pwr Pnl-W/B Assy/Hldg Tank
FC 32-08, Elec Load Mgmt Sys (ELMS)
FC 32-10, Electrical Sys. Cntrl/Indication
FC 32-23, ARINC 629-Cardfiles, BPCU, GCU, FSCF, ELMS
FC 32-92, Eng/Strut Wiring Instl/Airplane
FC 32-95, HIRF Protection-Electrical
FC 32-97, EBU Wire Bundle Assemblies
ASSET Main Module

FIG. 71

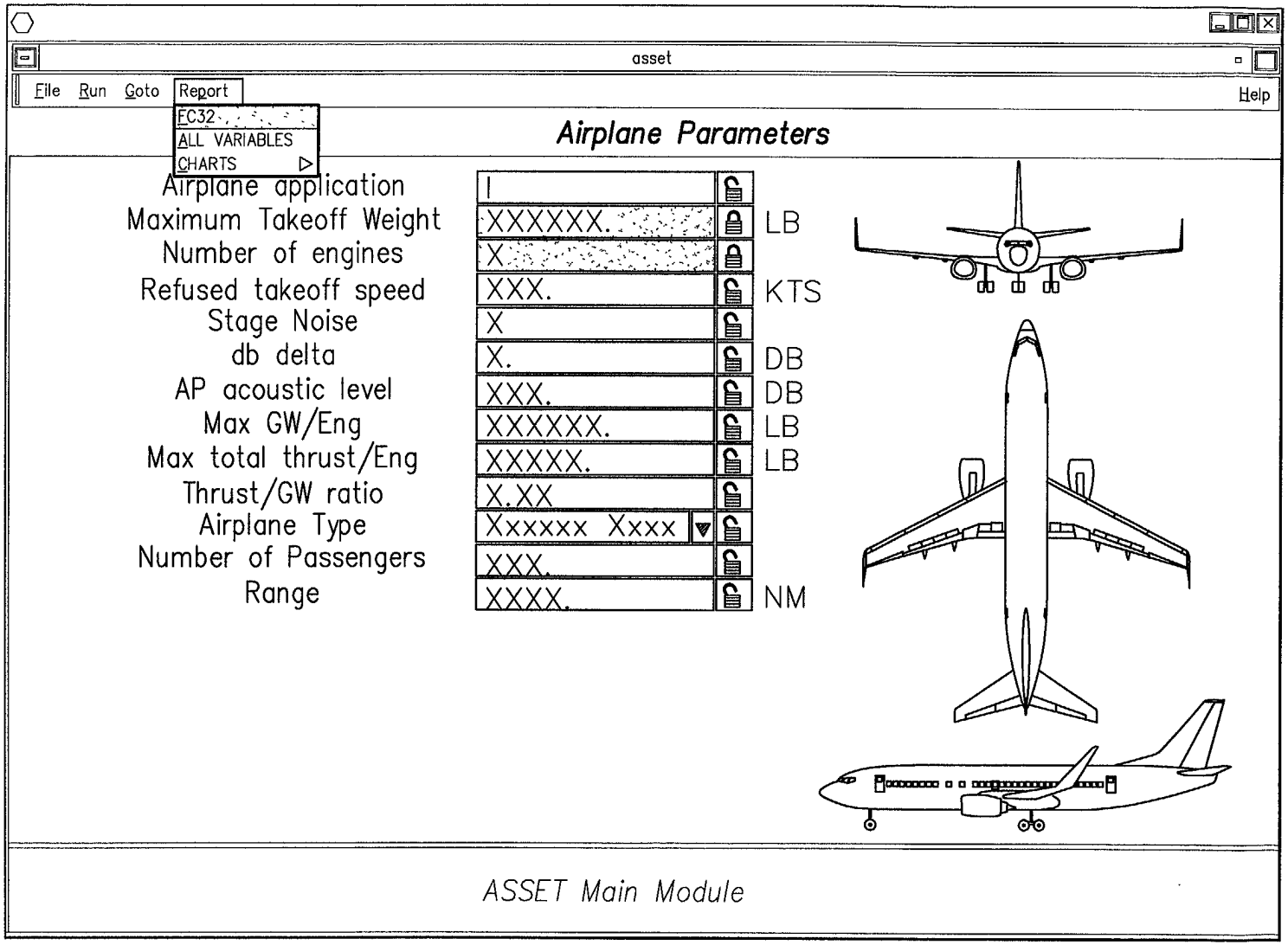

FIG. 72

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

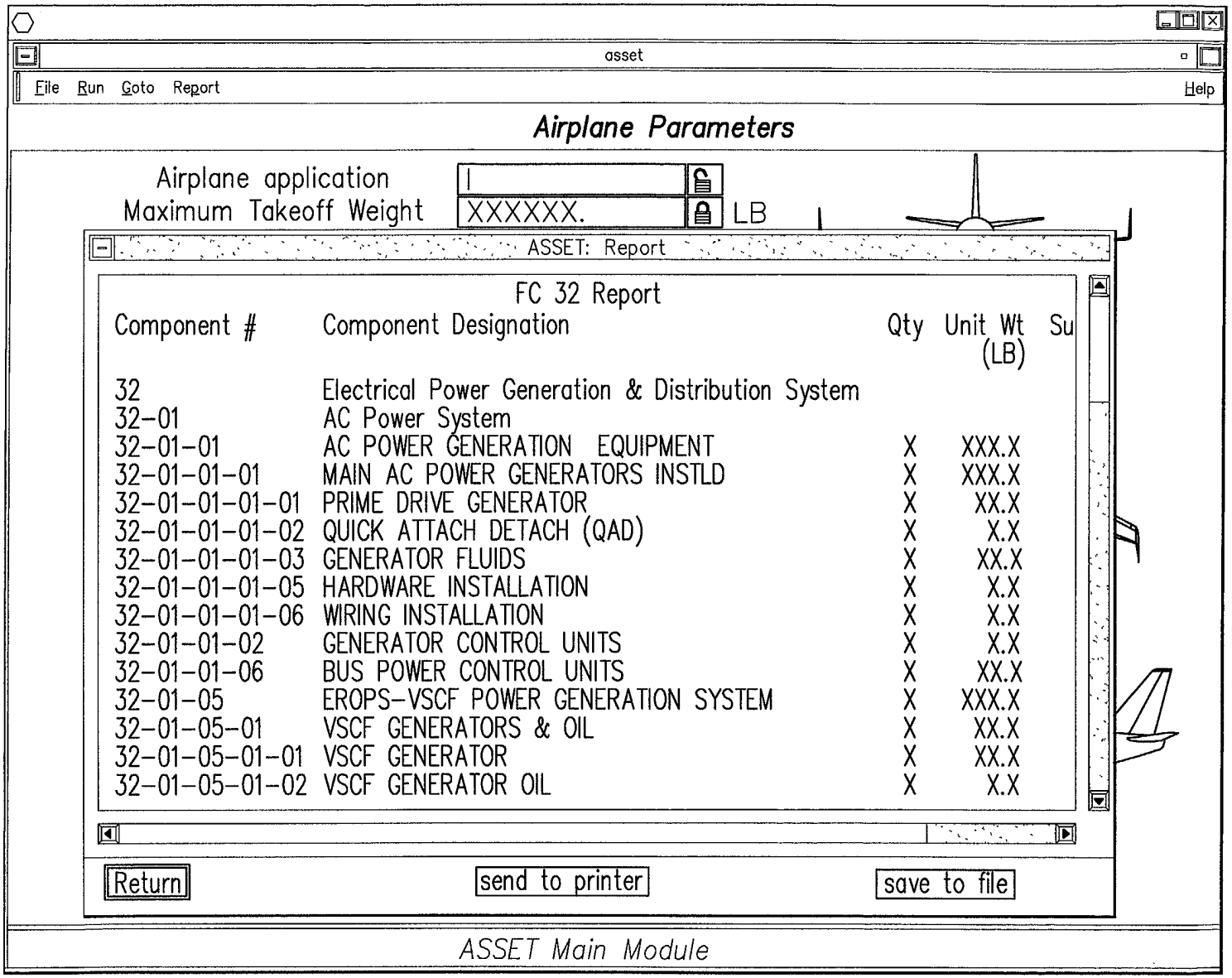

FIG. 73

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

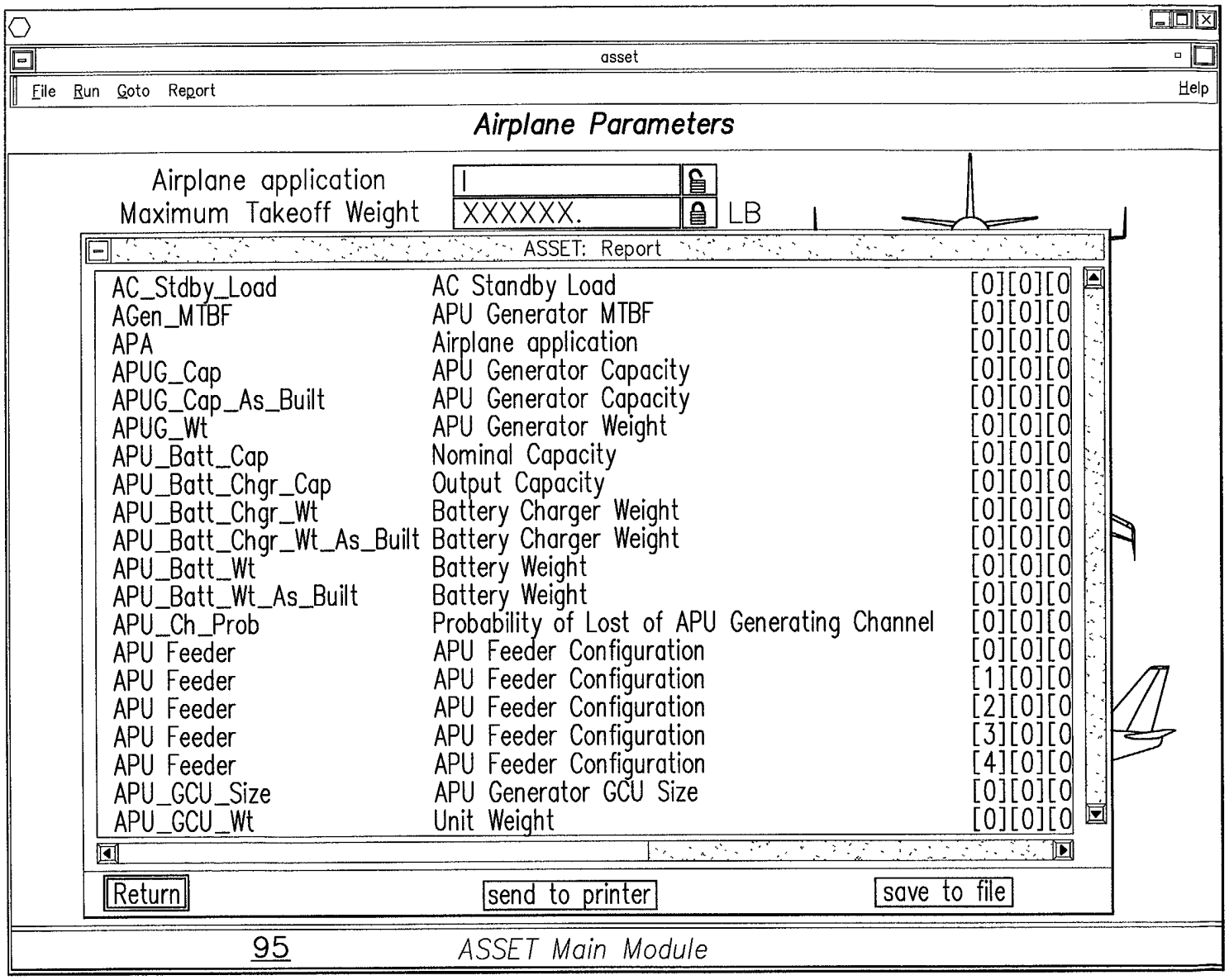

FIG. 74

TITLE: AIRCRAFT SYNTHESIS AND SYSTEMS EVALUATION METHOD FOR DETERMINING AND EVALUATING ELECTRICAL POWER GENERATION AND DISTRIBUTION SYSTEM COMPONENTS
INVENTOR: BOND, et al.
SN: 09/900,522; FILED 7/6/01
ATTY: MARK D. ELCHUK; PHONE: (248) 641-1229

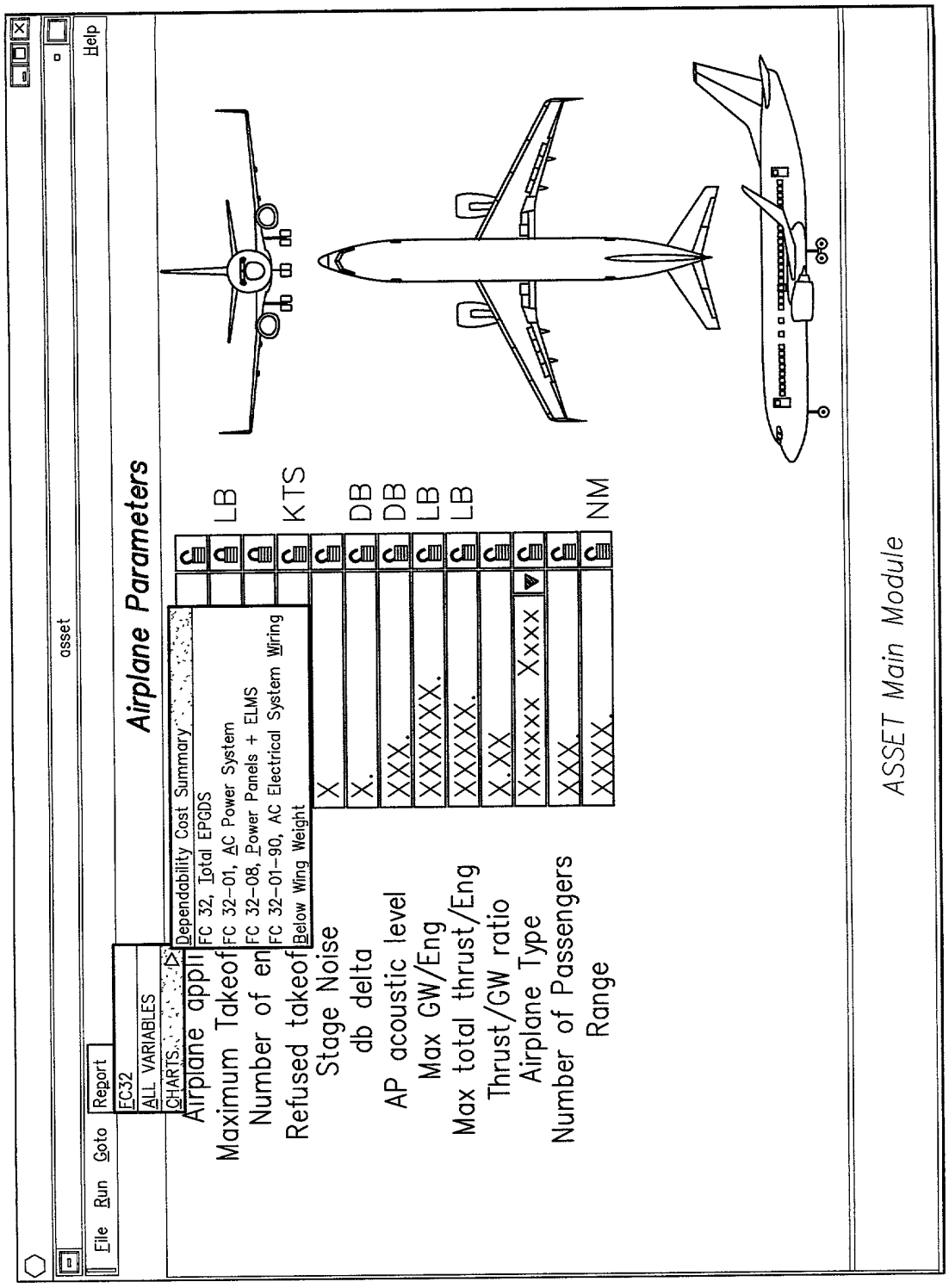
asset
File Run Goto Report
Help
FC32
ALL VARIABLES
CHARTS...
Airplane Parameters
Dependability Cost Summary
FC 32, Total EPGDS
FC 32-01, AC Power System
FC 32-08, Power Panels + ELMS
FC 32-01-90, AC Electrical System Wiring
Below Wing Weight
Airplane appli
Maximum Takeof
Number of en
Refused takeof
Stage Noise
db delta
AP acoustic level
Max GW/Eng
Max total thrust/Eng
Thrust/GW ratio
Airplane Type
Number of Passengers
Range
LB
KTS
DB
DB
LB
LB
NM
X
X.
XXX.
XXXXX.
XXXXX.
X.XX
Xxxxx Xxxx
XXX.
XXXX.
ASSET Main Module

FIG. 75

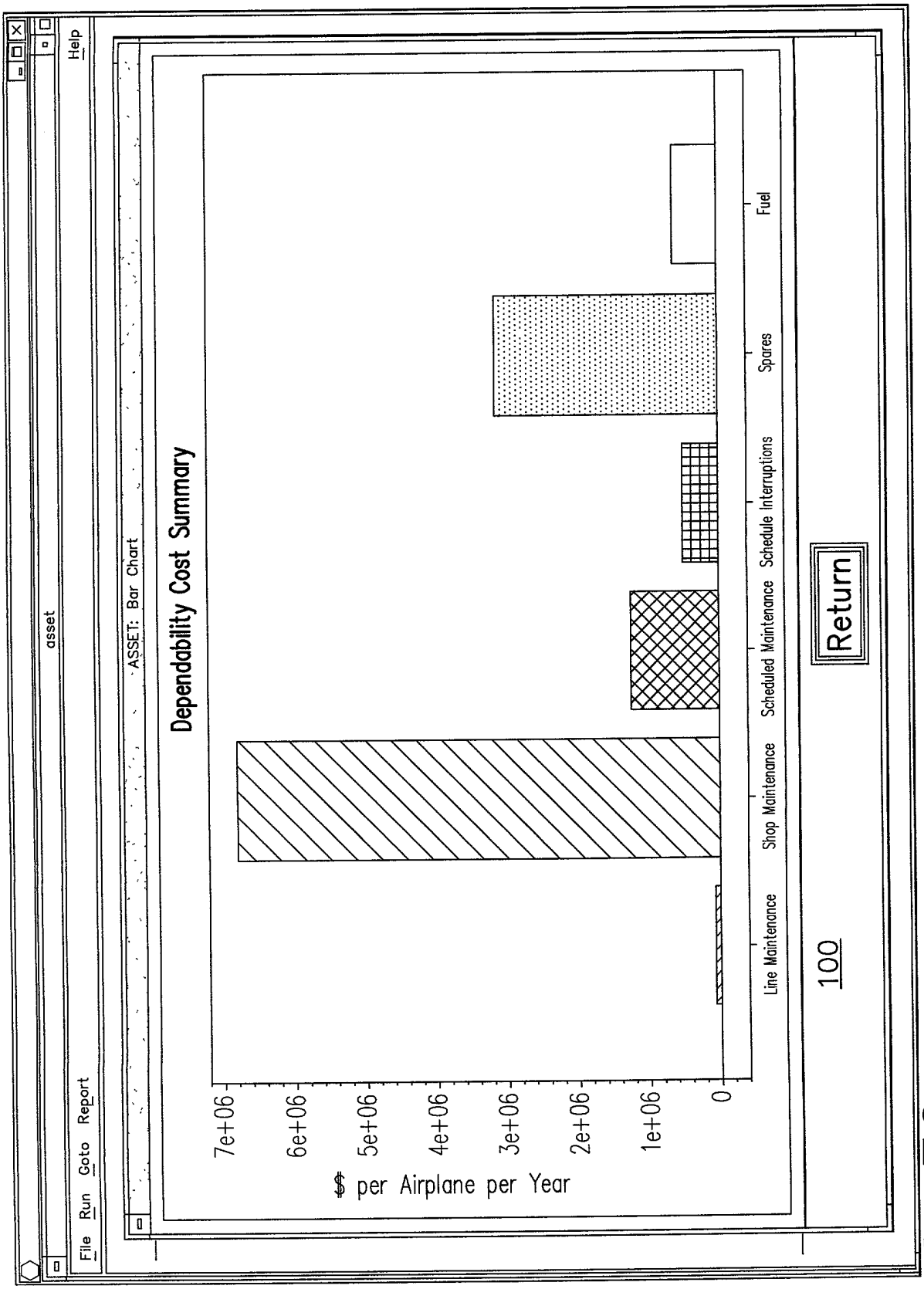
asset
File Run Goto Report Help
ASSET: Bar Chart
Dependability Cost Summary
$ per Airplane per Year
7e+06
6e+06
5e+06
4e+06
3e+06
2e+06
1e+06
0
Line Maintenance
Shop Maintenance
Scheduled Maintenance
Schedule Interruptions
Spares
Fuel
100
Return

FIG. 76

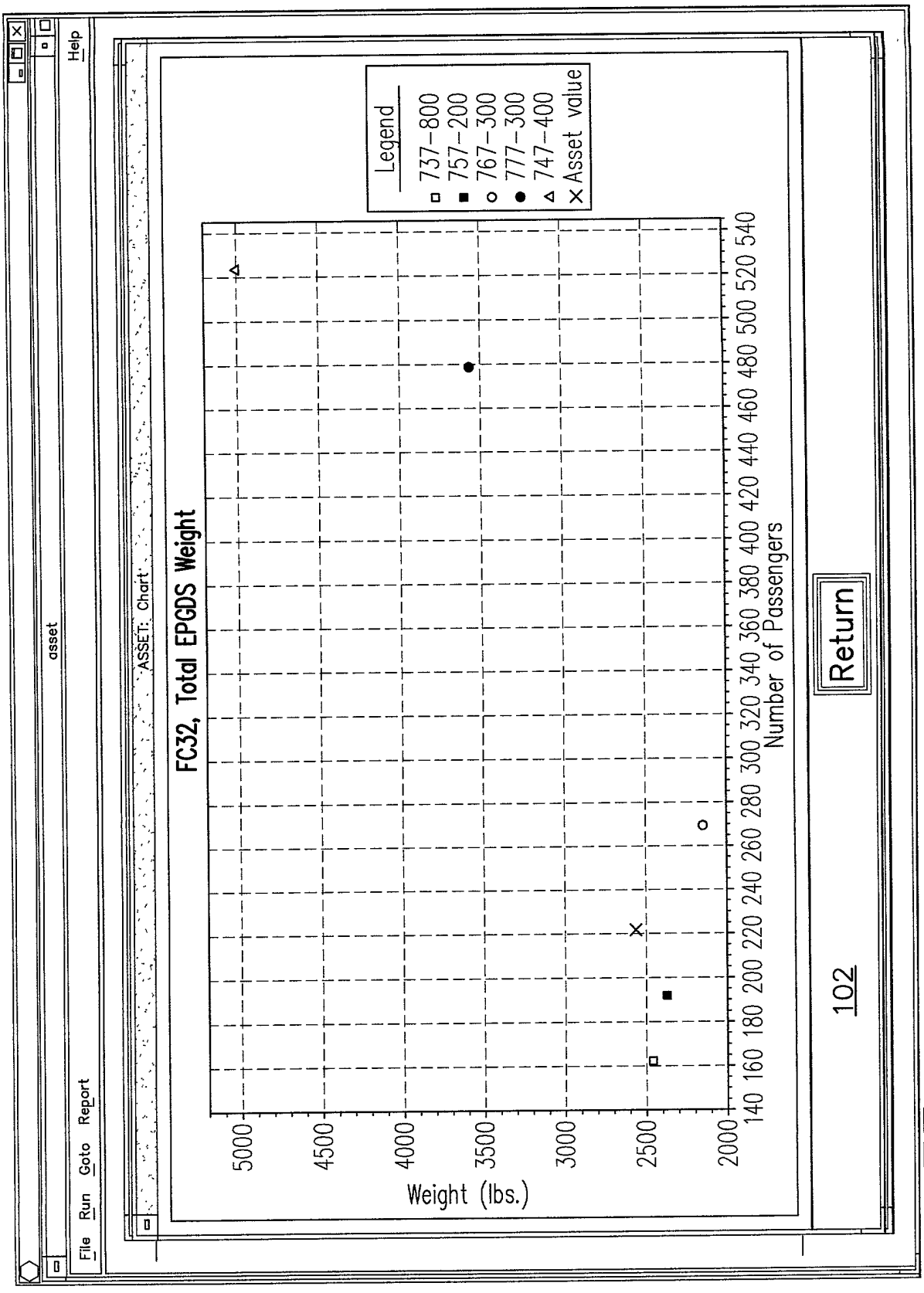

FIG. 77

PRINTED: 12/19/2005

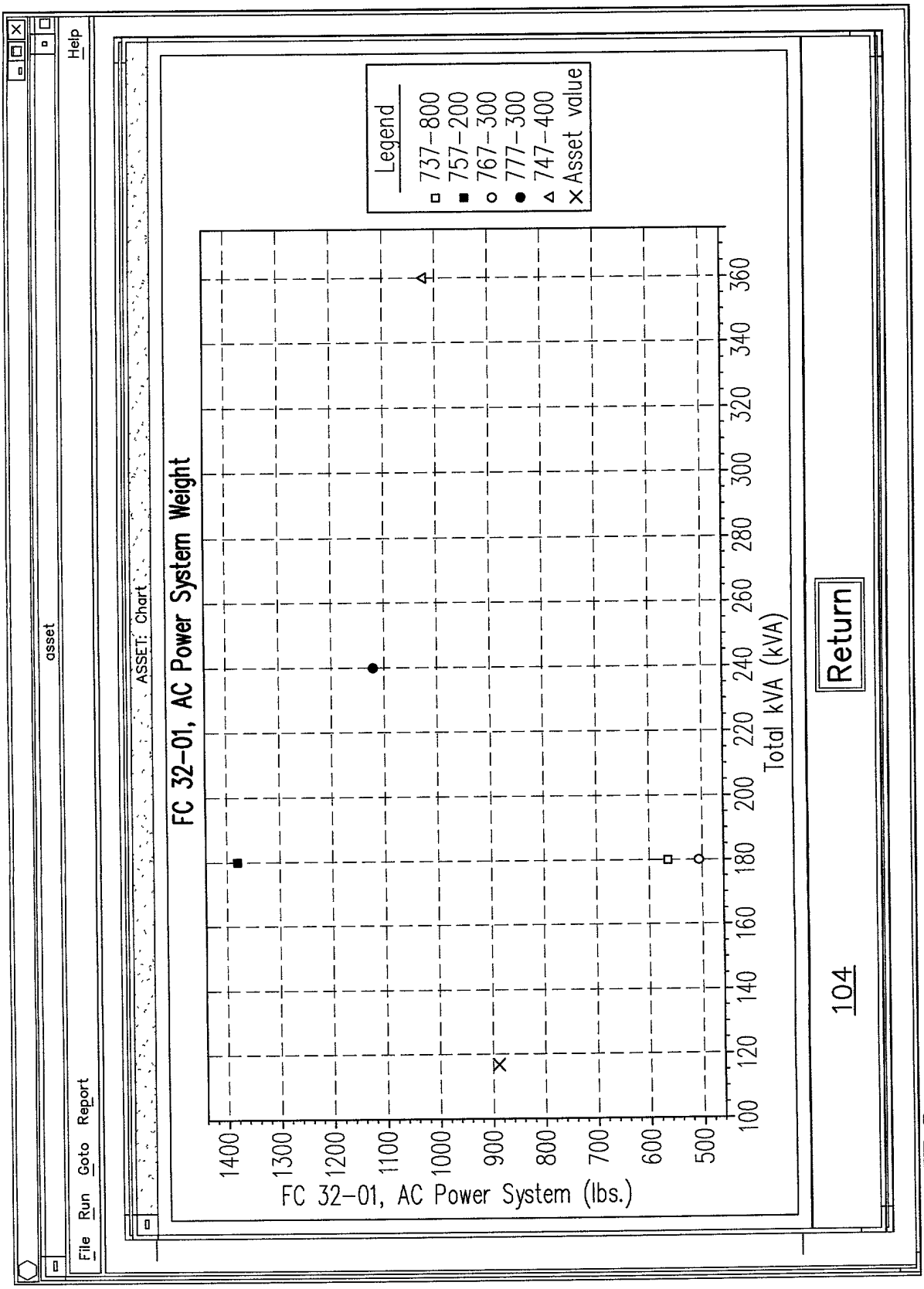
asset
File Run Goto Report Help
ASSET: Chart
FC 32-01, AC Power System Weight
Legend
737-800
757-200
767-300
777-300
747-400
Asset value
Total kVA (kVA)
100 120 140 160 180 200 220 240 260 280 300 320 340 360
FC 32-01, AC Power System (lbs.)
1400 1300 1200 1100 1000 900 800 700 600 500
Return
104

FIG. 78

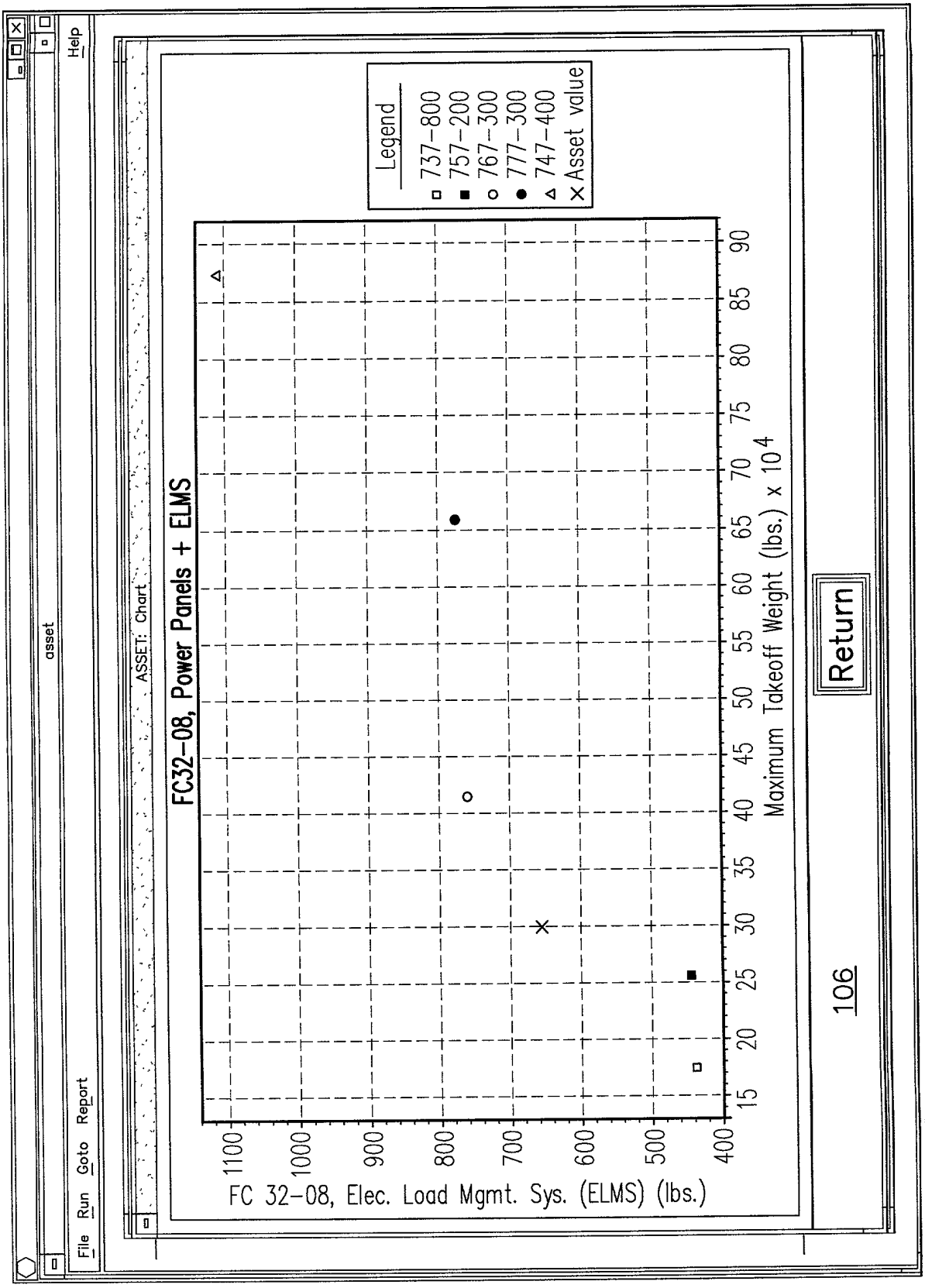
File Run Goto Report
Help
asset
ASSET: Chart
FC32-08, Power Panels + ELMS
Legend
737-800
757-200
767-300
777-300
747-400
Asset value
Maximum Takeoff Weight (lbs.) x 10^4
FC 32-08, Elec. Load Mgmt. Sys. (ELMS) (lbs.)
Return
106

FIG. 79

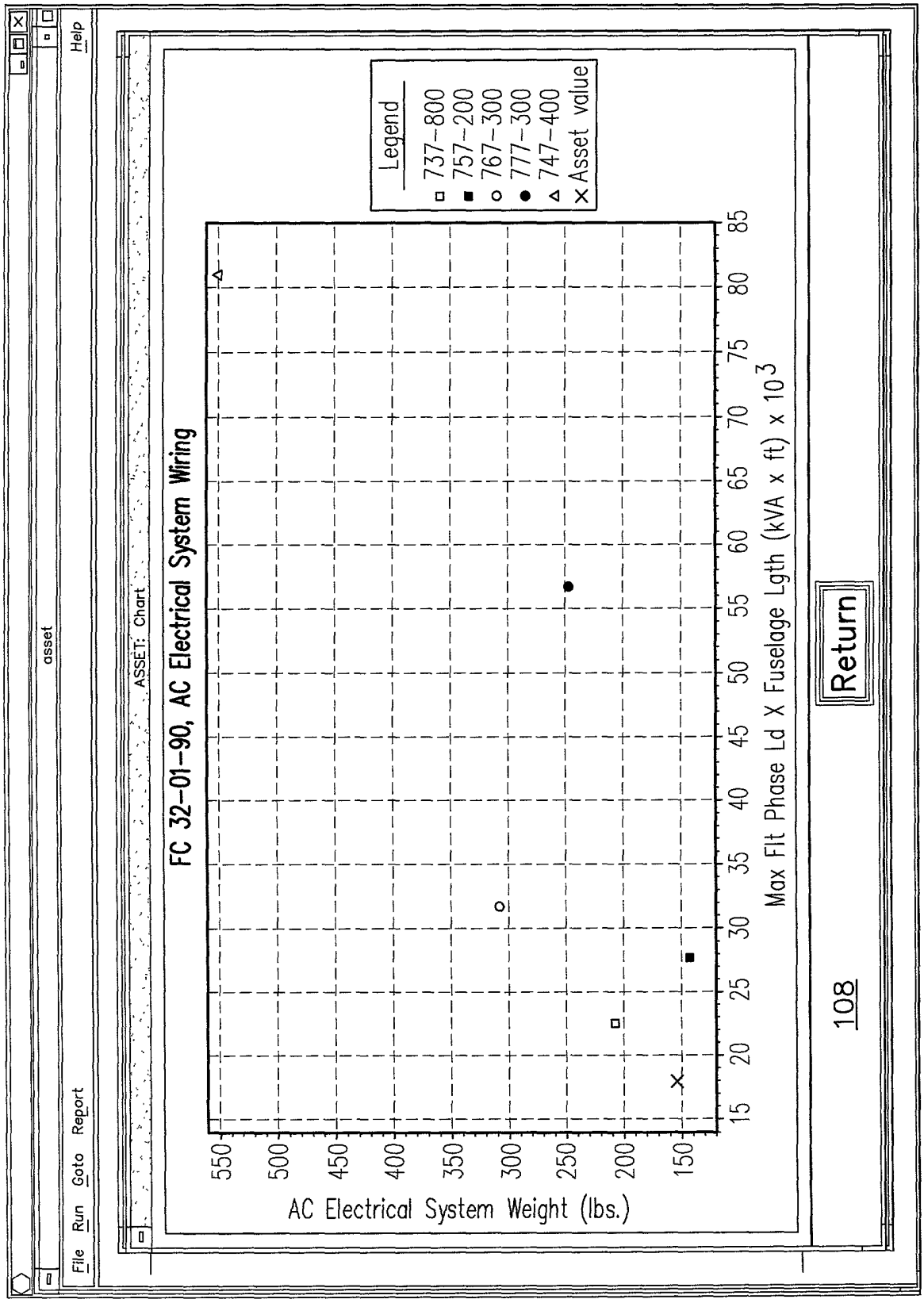
asset
File Run Goto Report Help
ASSET: Chart
FC 32-01-90, AC Electrical System Wiring
Legend
737-800
757-200
767-300
777-300
747-400
Asset value
AC Electrical System Weight (lbs.)
550 500 450 400 350 300 250 200 150
Max Flt Phase Ld X Fuselage Lgth (kVA x ft) x 10^3
15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Return
108

FIG. 80

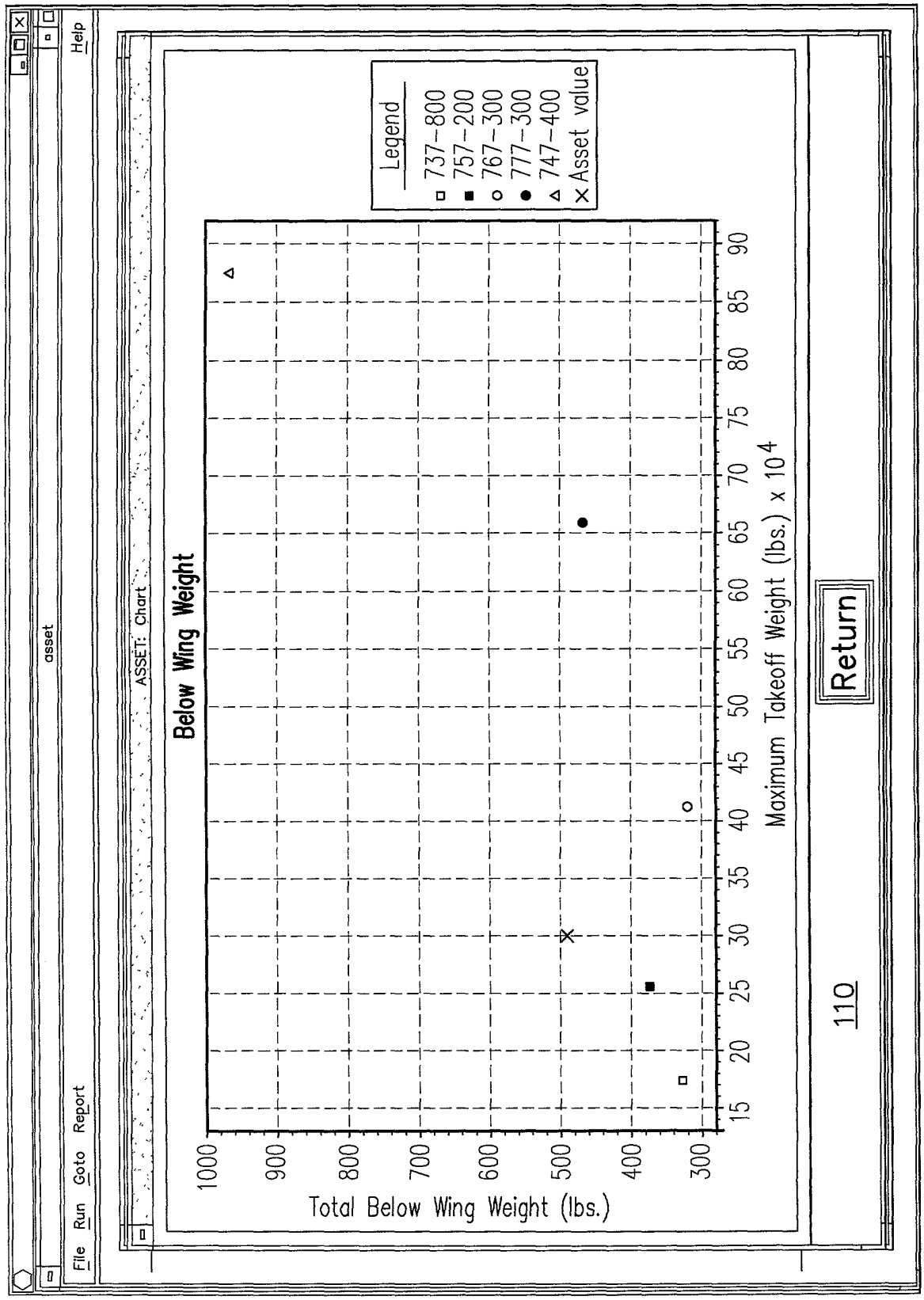
asset
File Run Goto Report Help
ASSET: Chart
Below Wing Weight
Legend
737-800
757-200
767-300
777-300
747-400
Asset value
Total Below Wing Weight (lbs.)
1000
900
800
700
600
500
400
300
Maximum Takeoff Weight (lbs.) x 10^4
15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
Return
110

FIG. 81